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The Bridgespan Group

Select Materials from College Access Analysis

Prepared for: Bill & Melinda Gates Foundation

Project occurred from
Nov 05 to Feb 06

Overview of materials

- This document contains synthesized materials from the Bridgespan engagement with the Gates Foundation
  - The engagement occurred from Nov 2005 to Feb 2006
  - All data and materials are from that engagement and have not been updated

- Select materials from the course of the work have been compiled into this document
  - Inputs include the materials from all of the working sessions as well as the final set of materials
  - This compiled document is a new creation and did not exist during the engagement (created May 2009)

- The material is grouped into four categories
  - Data on postsecondary access and success
  - Analysis of high school supports most crucial to college success (barriers analysis)
  - College Access Theory of Change (independent of foundation's role)
  - Framework on roles of Policy, Program, and Knowledge in driving change

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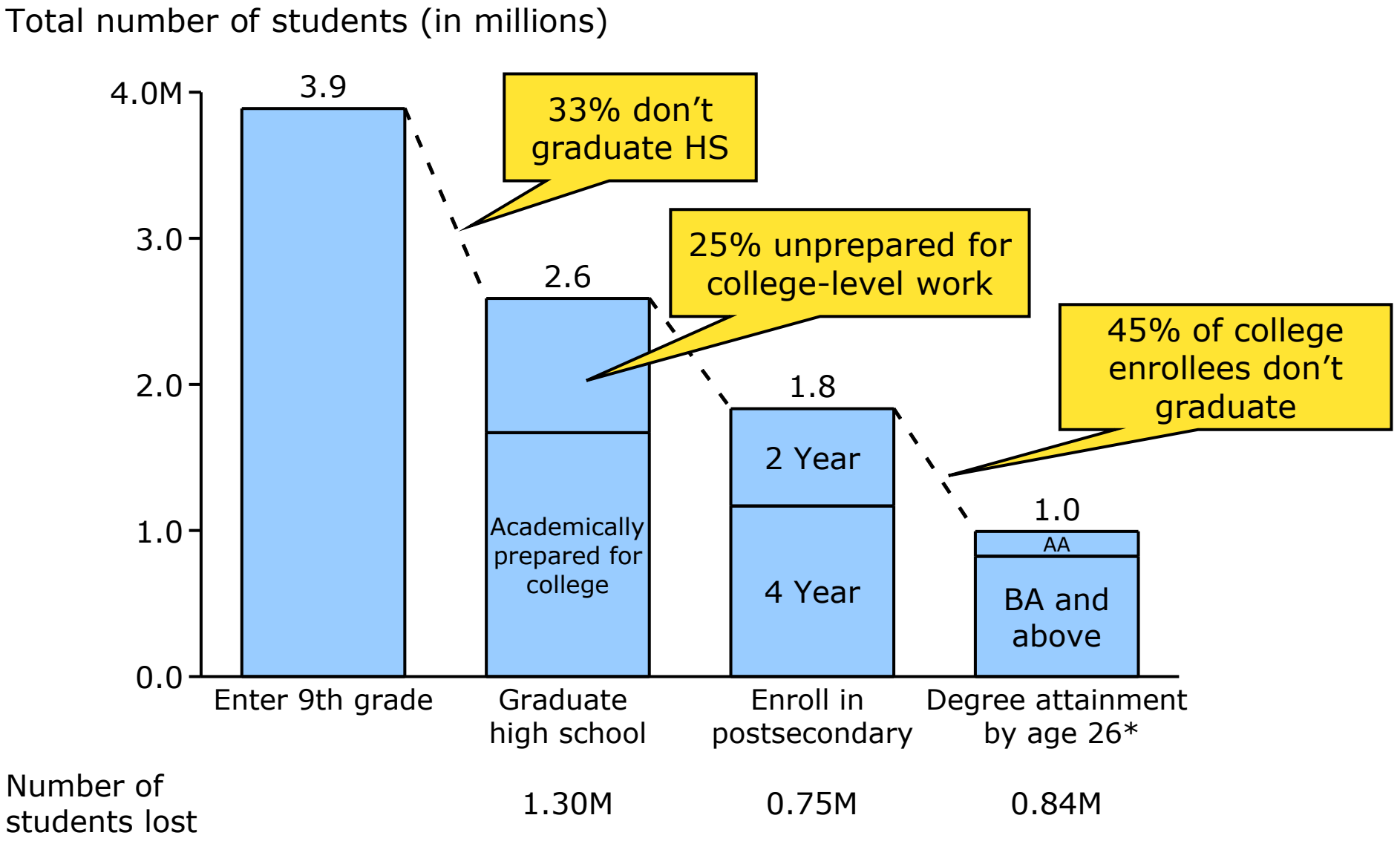
We've combined the strongest components of pipeline methodologies into a hybrid

	Longitudinal	Snapshot	Our hybrid
Methodology	• National study tracking student cohort from 1988-2000 (NELS)	• Mix of best-of-breed analyses assessing student progression at defined time intervals	• Combine snap shot data on high school completion with longitudinal data on college, preparation, access, and attainment
Advantages	• Follows single cohort through mid-twenties • Detailed student population data - Demographic - Academic performance	• Ability to select best analytical methods • Most current data	• Most recent/accurate high school completion data • Allows use of longitudinal cohort data for segmentation
Limitations	• Over-estimation of high school graduation rates • Older data	• Analyses are on different student populations • Lack of data granularity for some analyses	• Analyses are on different student populations

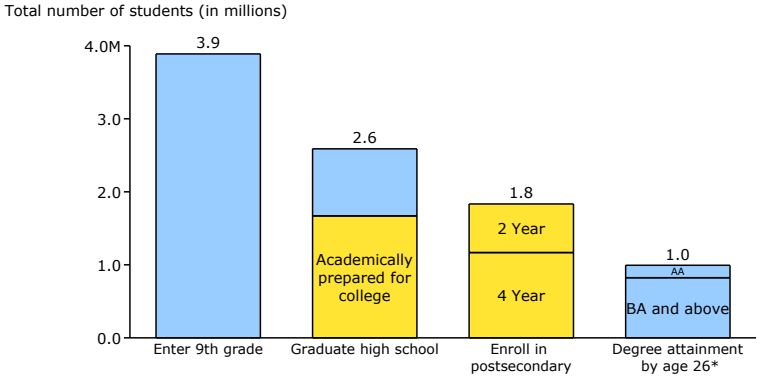
Greatest leakage in student numbers is in high school



*Within 8 years of high school graduation
Source: NELS 88/2000, CPI used for HS graduation rate
Note: Academically prepared for 4-year defined as students who met at least one of the following five criteria: Ranked at or above the 54th percentile in one's class, had a GPA of 2.7 or higher in academic courses, had a combined SAT score of 820 or above (ACT composite of 19 or higher), or scored at the 56th percentile above on the 1992 NELS math and reading composite aptitude test; adjusted for rigor of curriculum.

Two junctures in the pipeline deserve further scrutiny

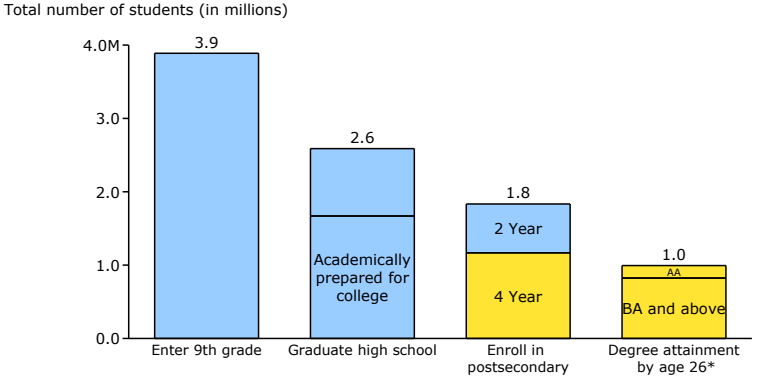
Academic preparation



The number of academically prepared students roughly equals the number who attend college

What happens to the unprepared students?

Two year college going

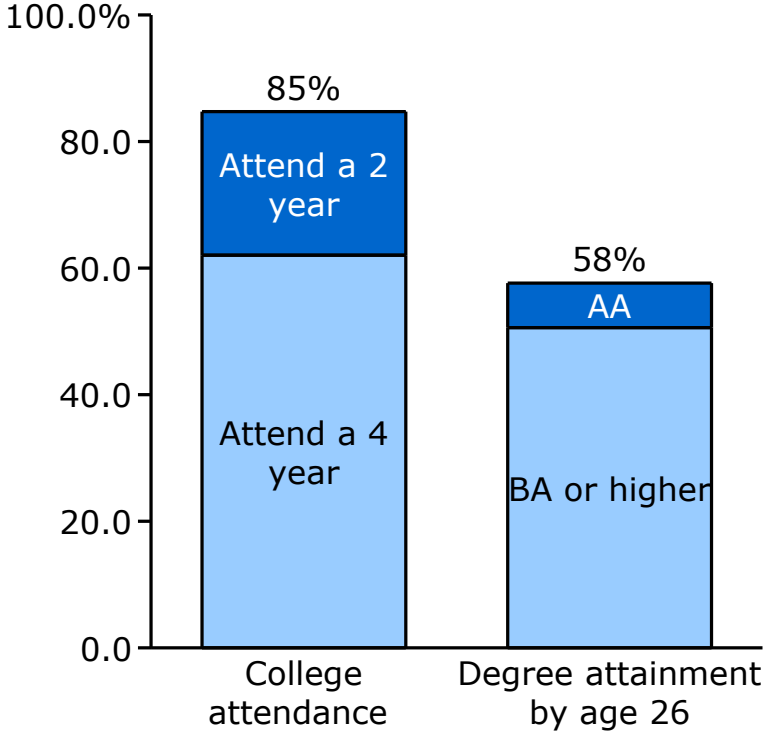


BA recipients appear to be primarily a subset of those who attend 4-year colleges

What happens to students who attend 2 year colleges?

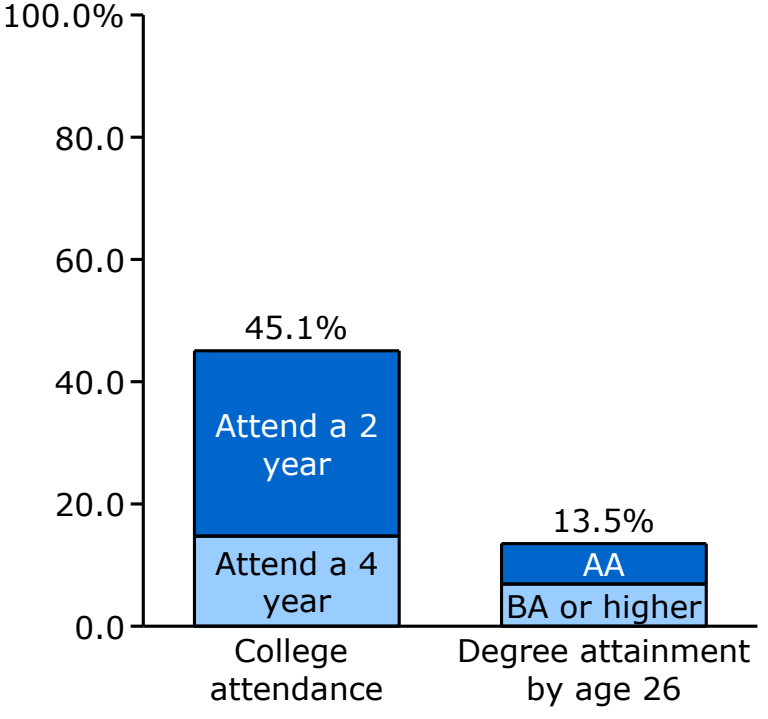
Academic preparation drives degree attainment

1992 high school graduates who were academically prepared for college



Academically prepared

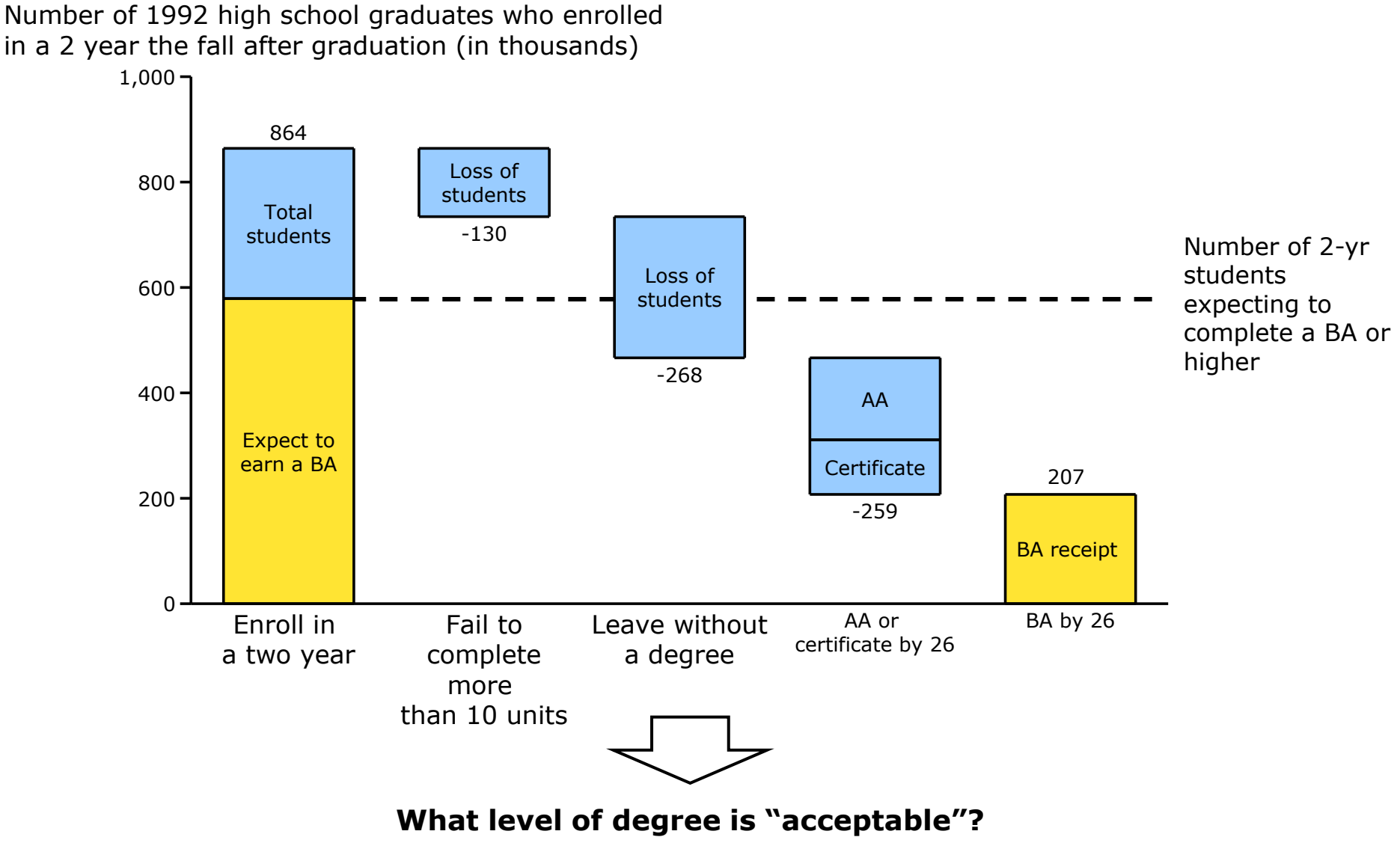
1992 high school graduates who were not academically prepared for college



Not academically prepared

Note: Academically prepared for 4-year defined as students who met at least one of the following five criteria: Ranked at or above the 54th percentile in one's class, had a GPA of 2.7 or higher in academic courses, had a combined SAT score of 820 or above (ACT composite of 19 or higher), or scored at the 56th percentile above on the 1992 NELS math and reading composite aptitude test; adjusted for rigor of curriculum.
Source: NELS 88/2000

A third of 2-yr students expecting to attain a BA successfully transfer and graduate

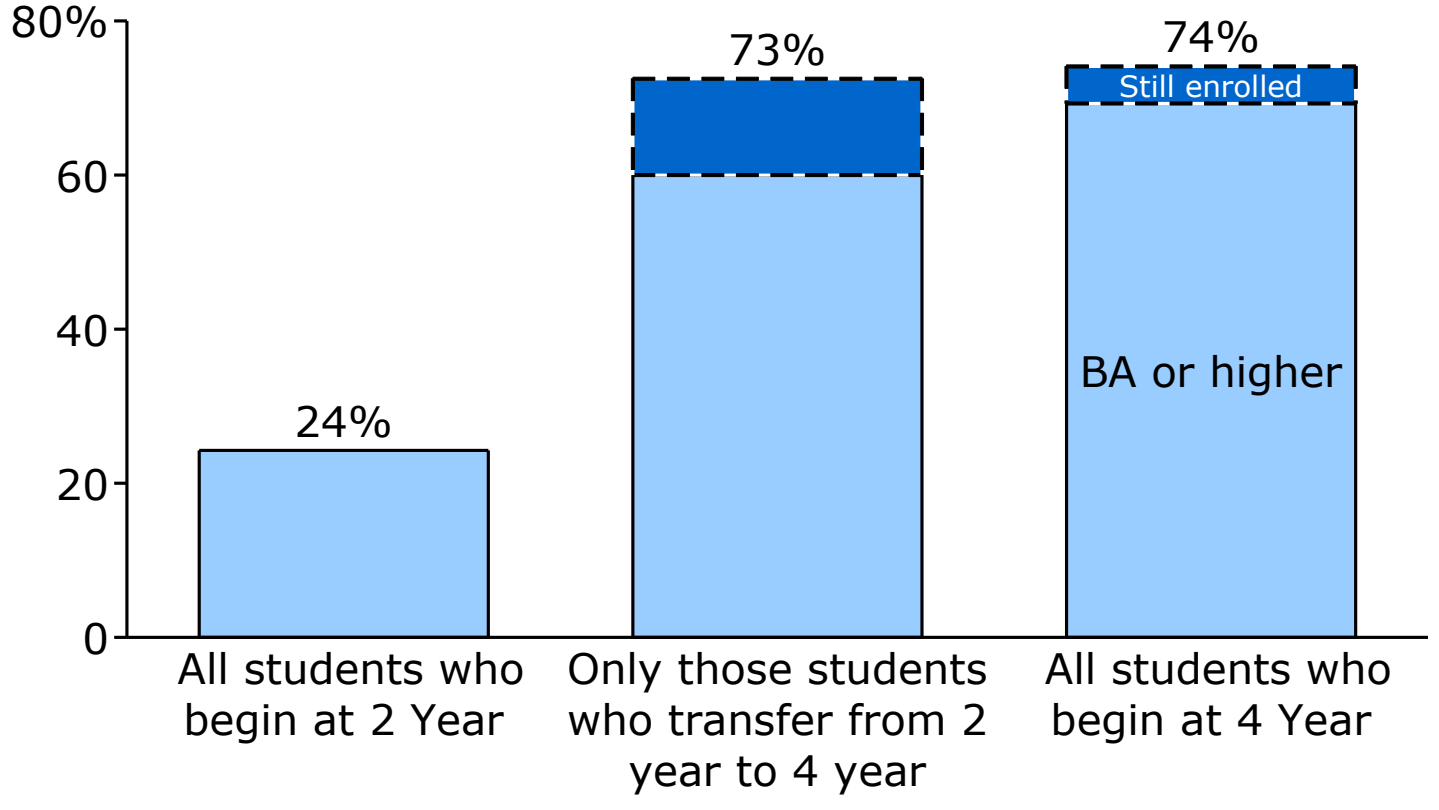


Note: BA by age 26

Source: NELS 88/2000, Team analysis; Educational expectations measured through response to the following question: What is the highest level of schooling you intend to complete. This question was asked in 12th grade; numbers were run for only those students who went on to 2 year colleges.

For those who persist and transfer to 4-yr, the BA attainment gap is nearly eliminated

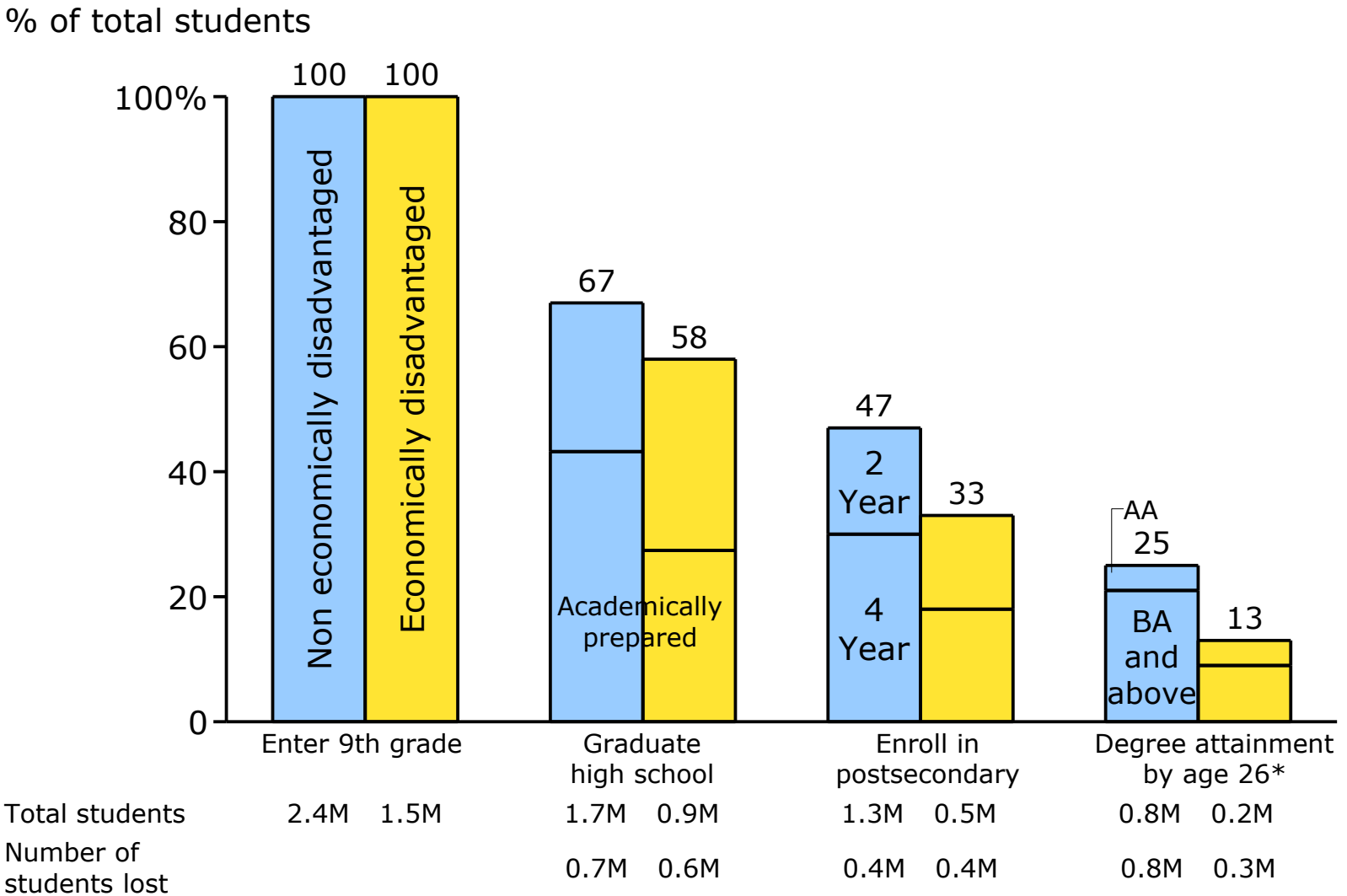
Degree attainment at age 26 among 1992 high school graduates



NoteBA by age 26

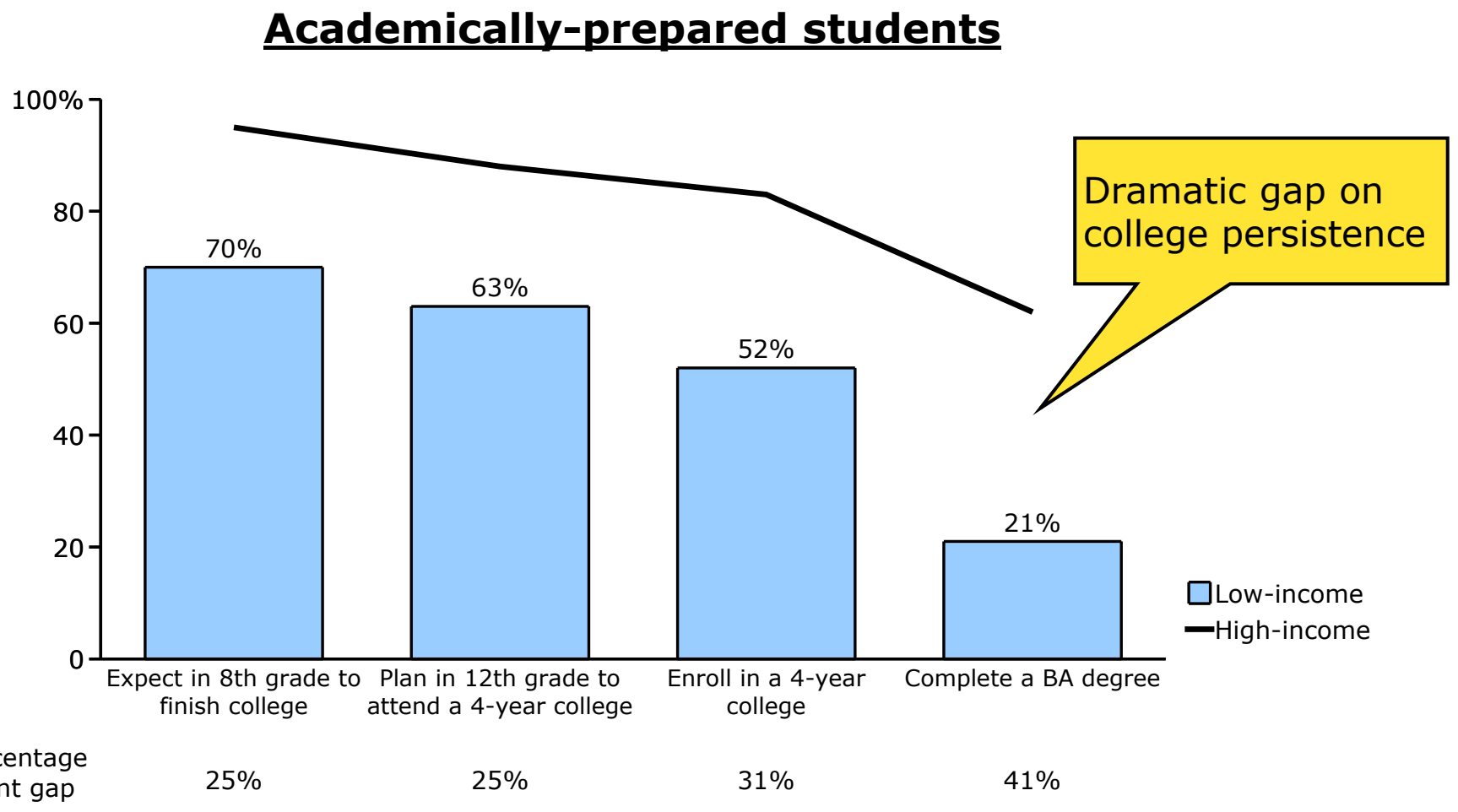
Source: NELS 88/2000

Pipeline looks worse for low-income students: only one in ten can expect to earn a BA



*Within 8 years of high school graduation
Note: Low income = 185% of poverty or less
Source: NELS 88/2000, USDA, adjusted CPI used for HS graduation rate

For low-income students, academic preparation only addresses part of the issue



Note: 4-year college qualified defined as students who met at least one of the following five criteria: Ranked at or above the 54th percentile in one's class, had a GPA of 2.7 or higher in academic courses, had a combined SAT score of 820 or above (ACT composite of 19 or higher), or scored at the 56th percentile or above on the 1992 NELS math and reading composite aptitude test; adjusted for level of rigor of curriculum.
Low-income = families with income below $25,000; High-income = families with income over $75,000
Source: "Empty Promises" The Myth of College Access in America," Advisory Committee on Student Financial Assistance, 2002.
Calculated from US Department of Education Data, NCES (1997) and (2002)

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Barriers/enablers for college access

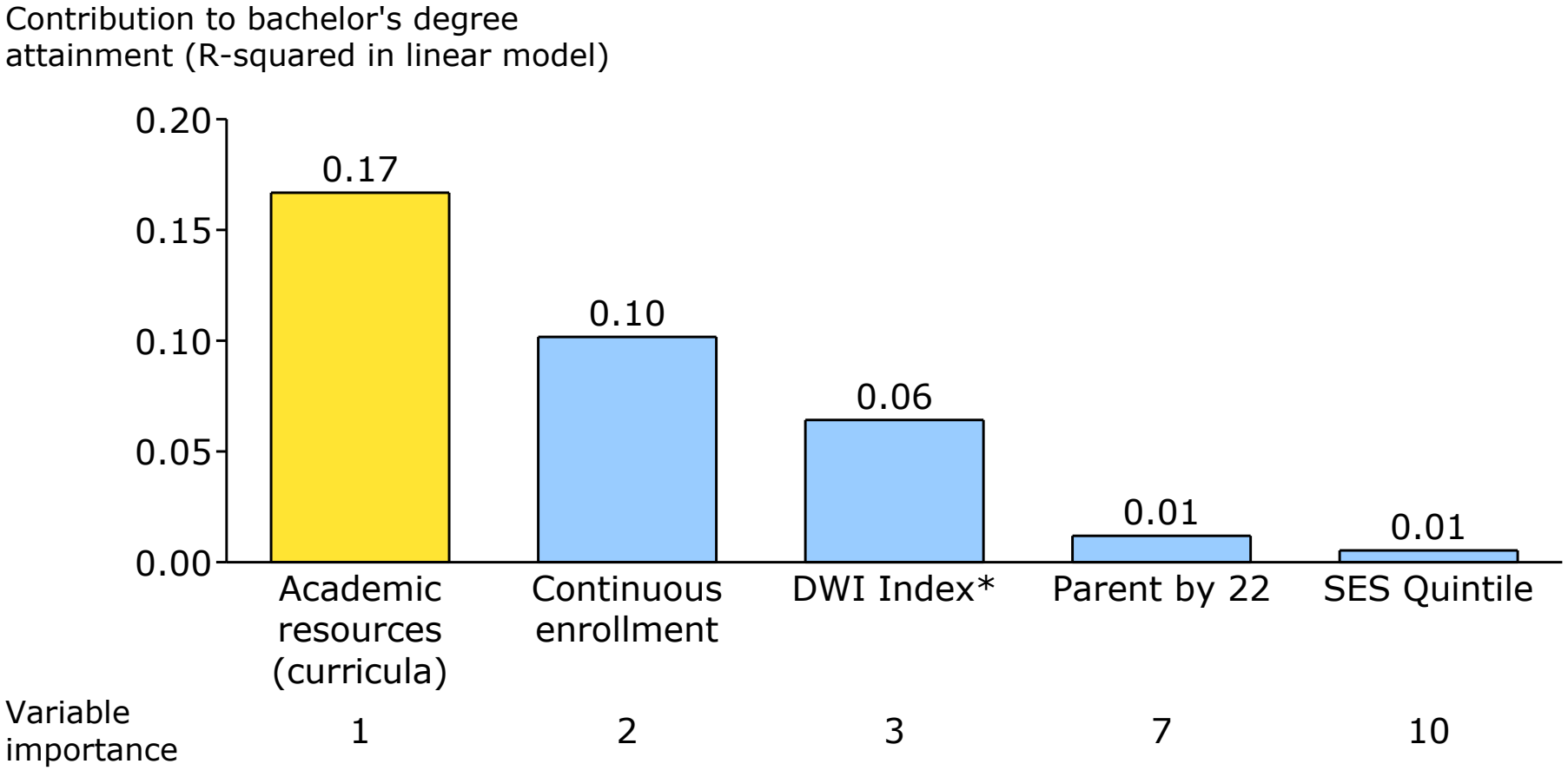
PRELIMINARY

Before college			After enrollment	
What stops a student from enrolling?			**What stops a student from graduating?**	
• College prep academics	• Transition/ study skills	Academic preparation	• Academics • Study skills	• Effective remediation
• Early guarantee of scholarships	• Financial planning	Affordability	• Financial aid • Manageable work	• Manageable debt
• Knowledge of benefits • How to qualify	• How to access financial aid • How to apply	Information and awareness	• Survival skills • Support services	• Academic requirements • Transfer requirements
• Student expectations • Peer support • Family support	• Adult expectations • Adult mentors	Social and cultural support	• Peer support • Family support	• Adult mentors
• College affordability • Availability of financial aid	• College capacity • College proximity	Structural limitations	• Availability of requisite courses	

Academic preparation is crucial; rigorous curricula most important component

" *'Academic Resources,' (which is driven by curriculum)…is the most important variable in predicting bachelor's degree completion"*

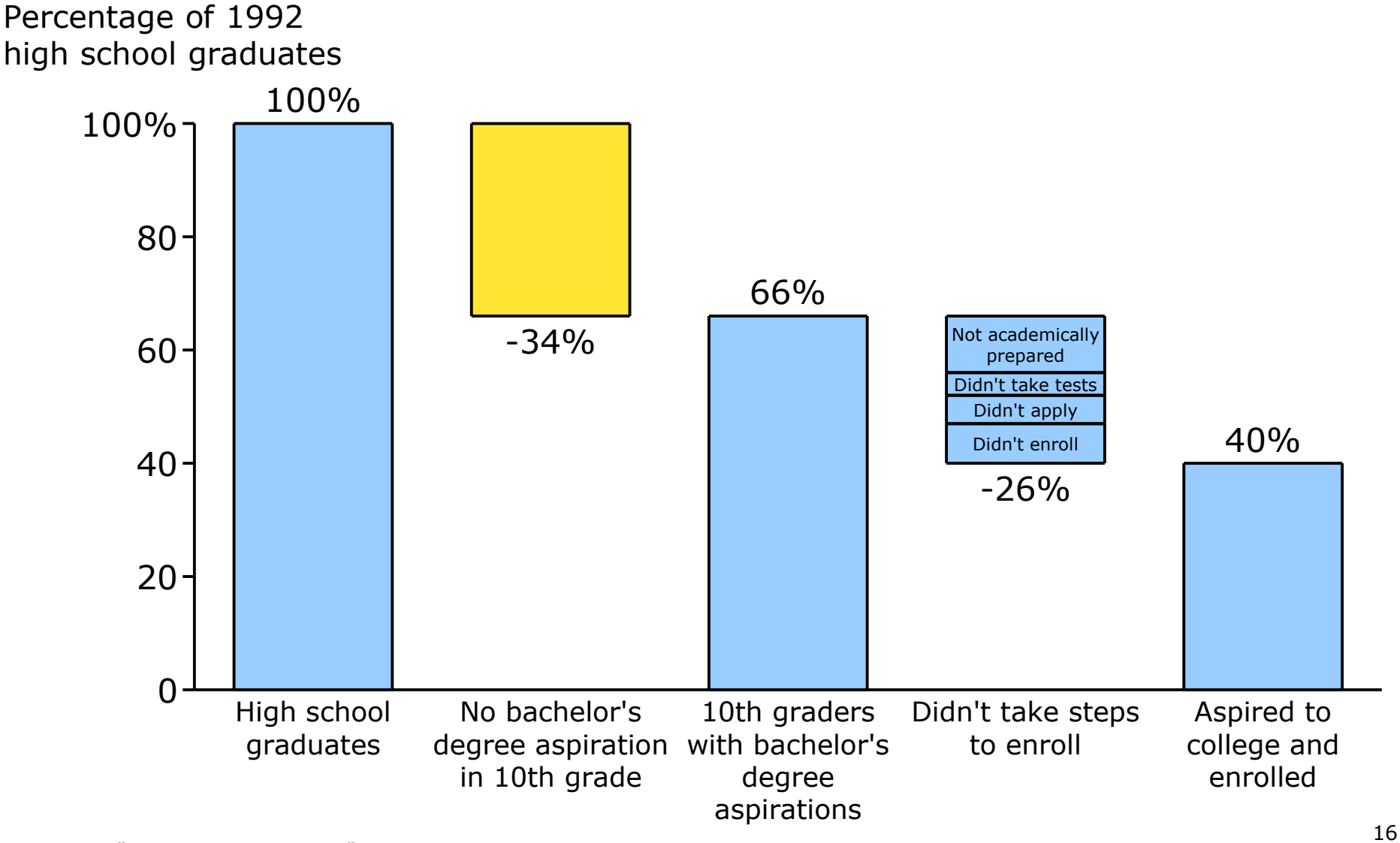
Adelman, *Answers in the Tool Box*



*DWI Index measures extent of dropped, withdrawn, or incomplete courses on a student's college transcript

Source: Adelman, "Answers in the Tool Box", NCES, 1999

Lack of college aspiration takes 1/3 of grads out of the pipeline before 10th grade



Source: ACE, "Access & Persistence," 2002

Executive summary of results

- **Importance of academic preparation** was reconfirmed in the analysis; potential impact from preparing all students was 8X the impact from removing the next highest barrier

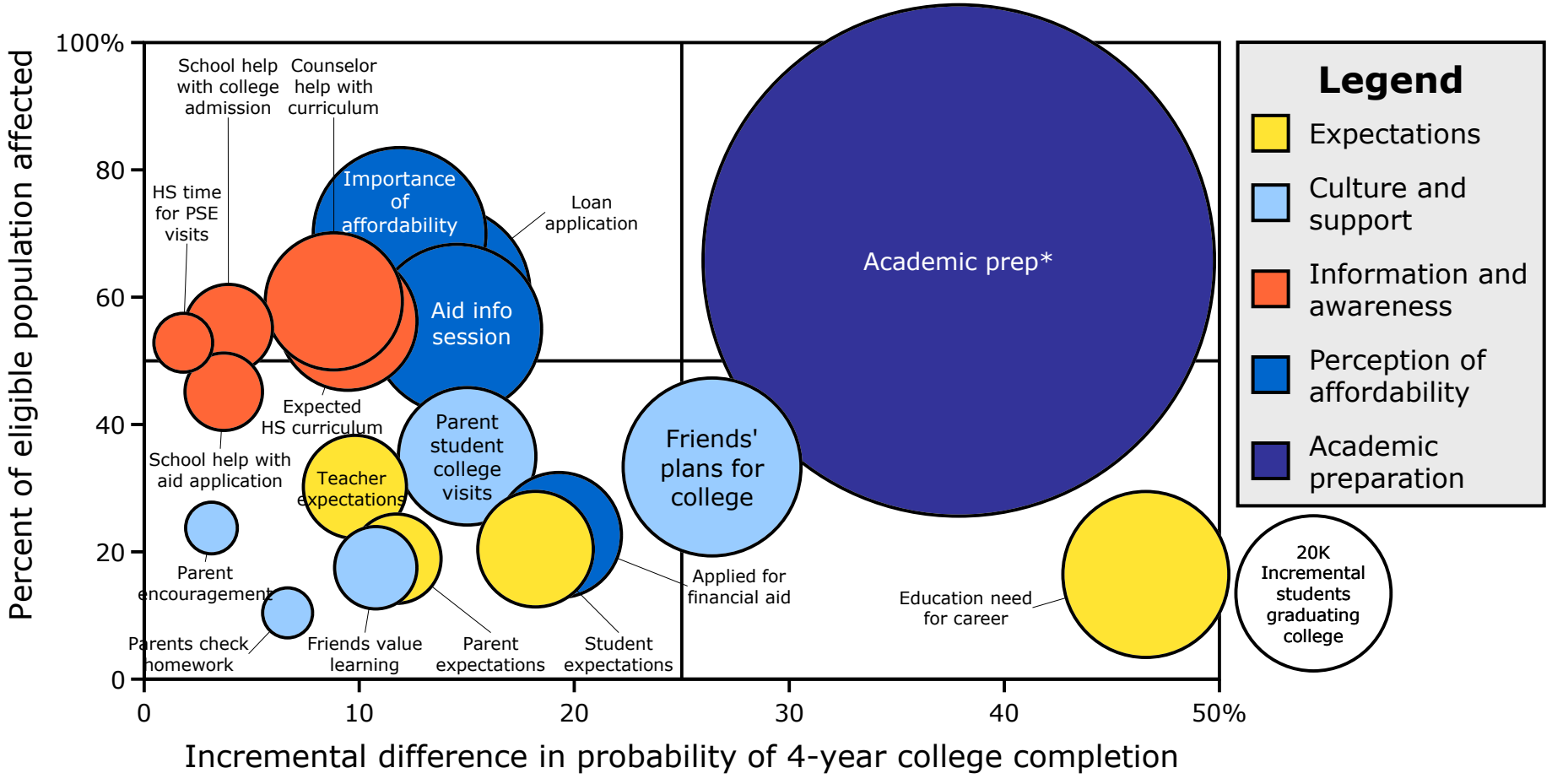
- Analysis of low-income, academically prepared students progression to and through 4-year college highlights several enablers besides preparation:
  - **Pervasive college-going culture matters**: Immersive college-going environment most crucial factor for enrollment and completion, led by having friends who plan for 4-year college
  - **Curriculum matters**: College prep curriculum expectations not in place for many who aspire to a BA
  - **Affordability matters**
    - Perceived: Perception of unaffordability inhibits college entrance
    - Real: Impact of "real" affordability large and potentially linked to shallow understanding of aid options
  - **Importance of education matters**: Of all variables, expecting a need for a BA for desired career at 30 has the largest incremental impact on college completion rates

- Nearly as interesting are some of the presumed enablers that have less effect on college completion
  - **Procedures don't matter by themselves**: Some of the least important barriers were the absence of help with college-going processes such as admissions application and aid application
  - **Expectations matter but are in place**: Expectations, particularly when tied to career goals, create high differential rates of attendance and completion, but most students already aspire for a BA

- Some, but not most, of increase in 4-year attendance and completion comes from a concurrent reduction in the rates for 2-year (38% of 4-year **enrollment** gain, 22% of **completion** gain)

- Standard errors overwhelm any conclusions that could be drawn from subpopulation analysis

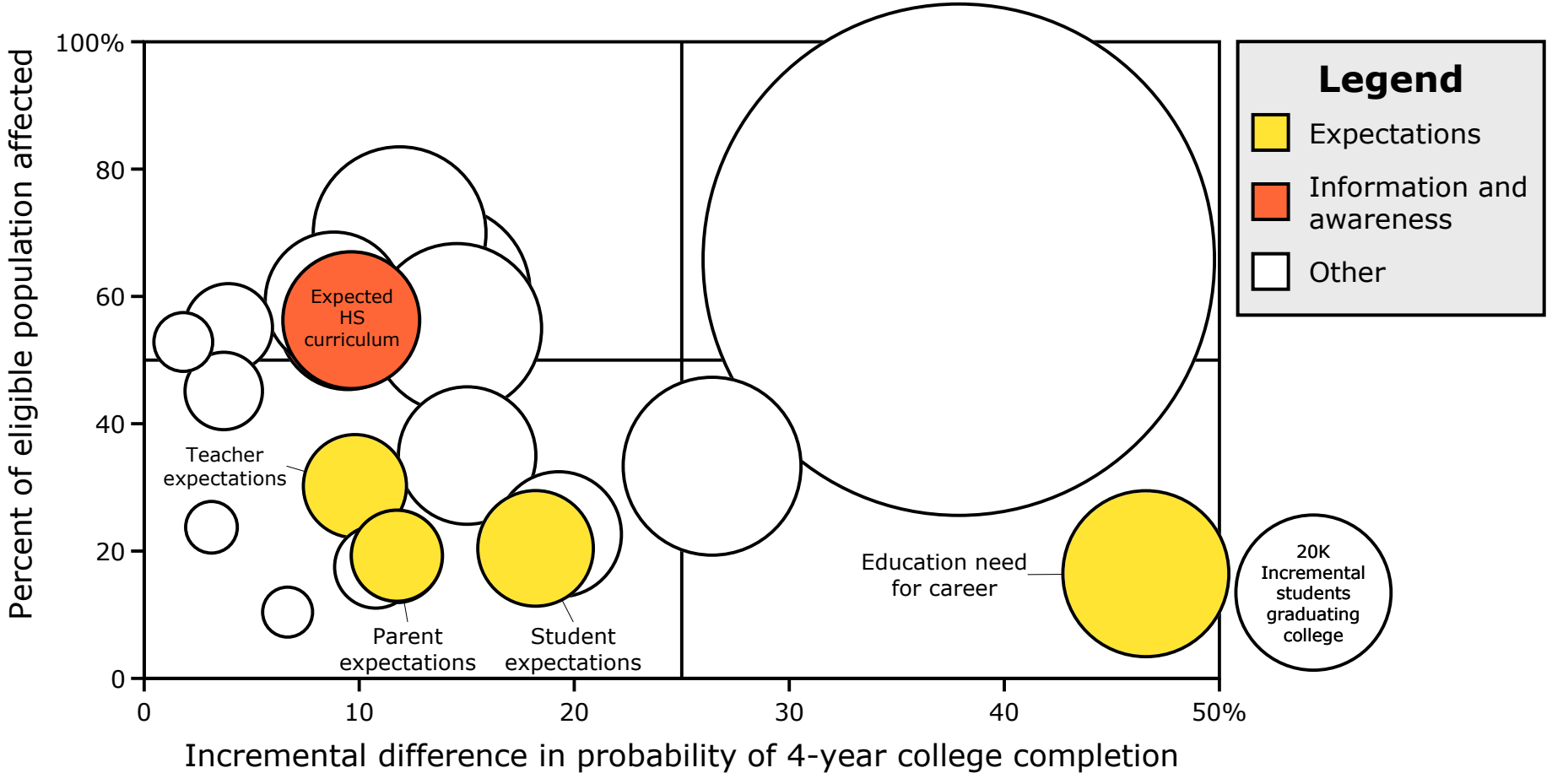
Barrier effect on 4-year college completion



Note: The picture for 4-year college *entrance* rates is largely similar. The most dramatic change is that several "affordability" barriers have larger incremental differences for entrance than for completion (Aid info session, Loan application, and Applied for financial aid; see backup slide for barrier effect on college entrance)

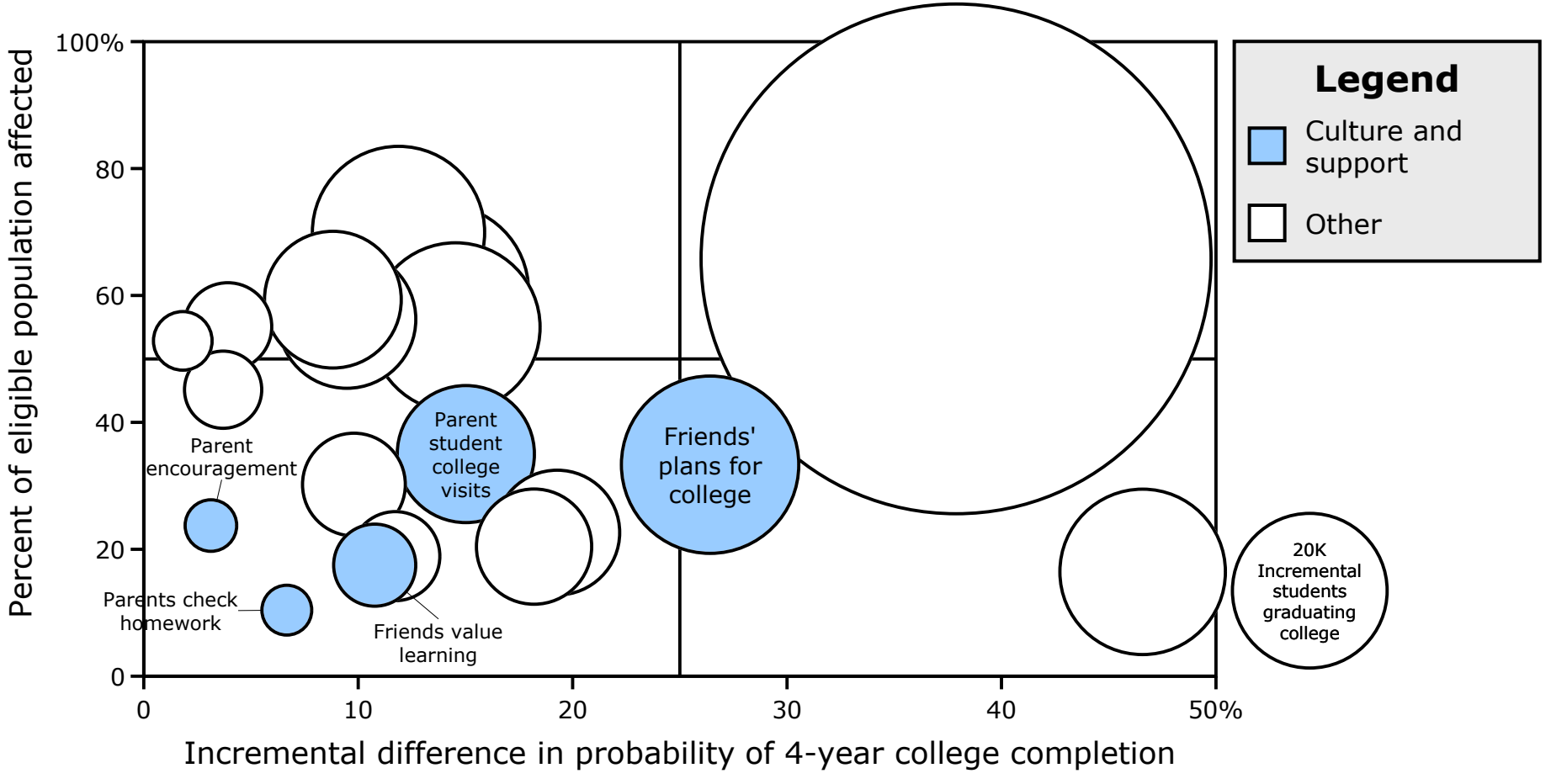
*For the purposes of this analysis, the eligible population for the academic preparation barrier was the set of all low-income high school graduates (~870K); for the other barriers, only academically prepared low-income high school graduates (~300K) were considered
Note: The variable "Parent discussed college application" had a negative impact on college-going rates and is excluded from this chart
Source: NELS 88:2000

Expectations: While most students expect a BA, many don't anticipate need for rigorous curriculum



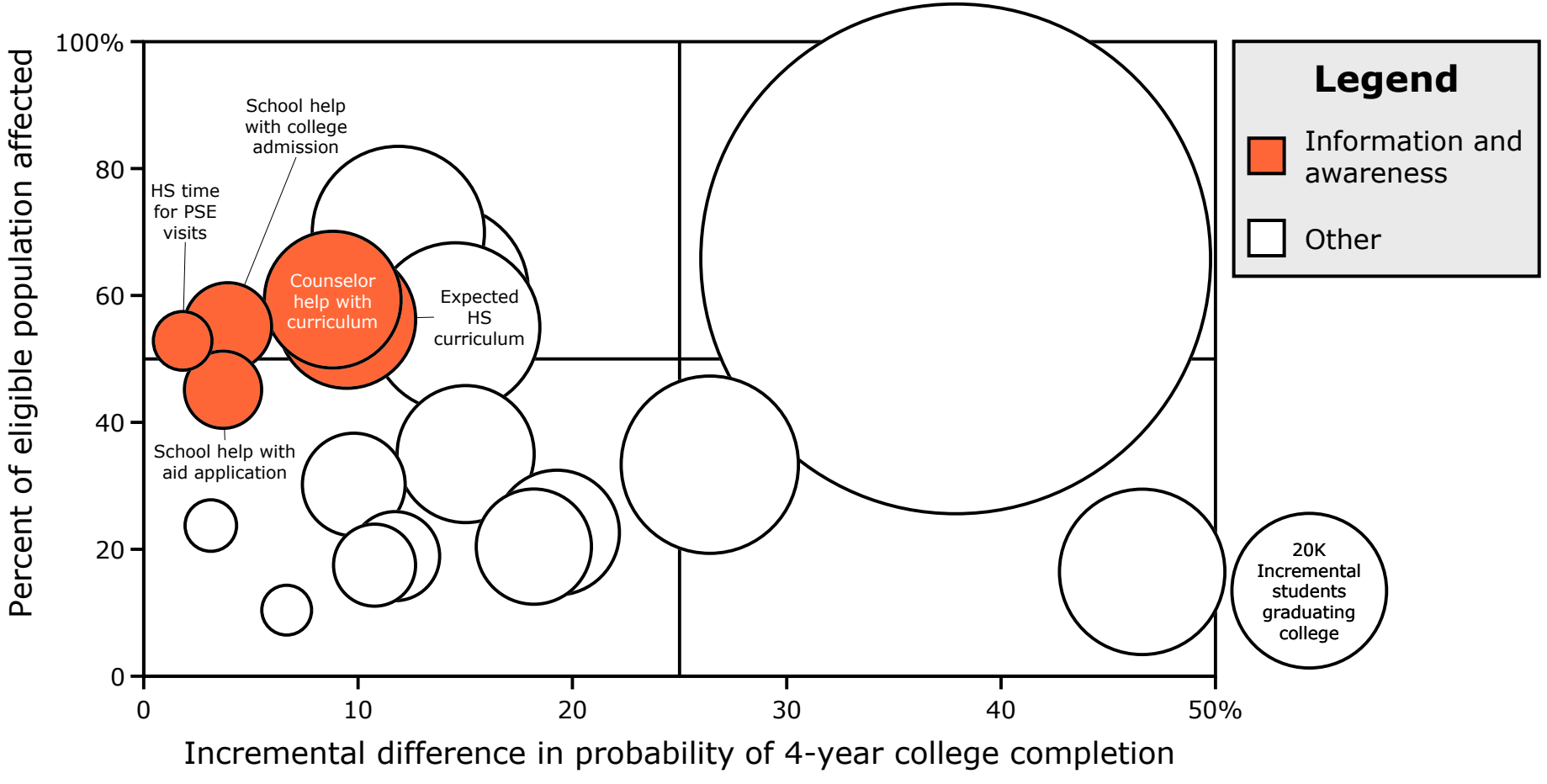
Source: NELS 88:2000

Culture and support: Effective college-going culture better defined by peer environment than other factors



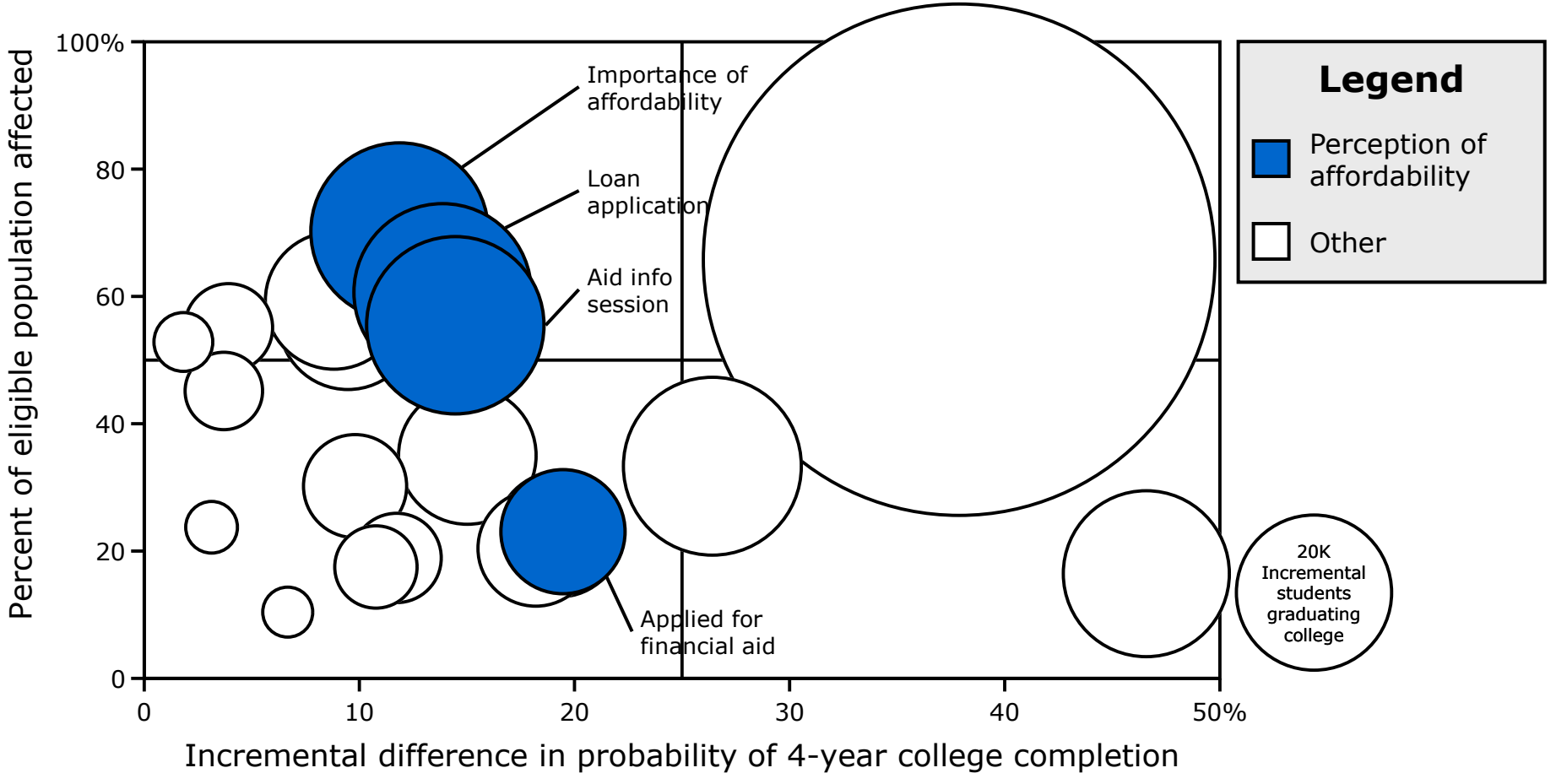
Source: NELS 88:2000

Information and awareness: Procedural assistance among the least important factors



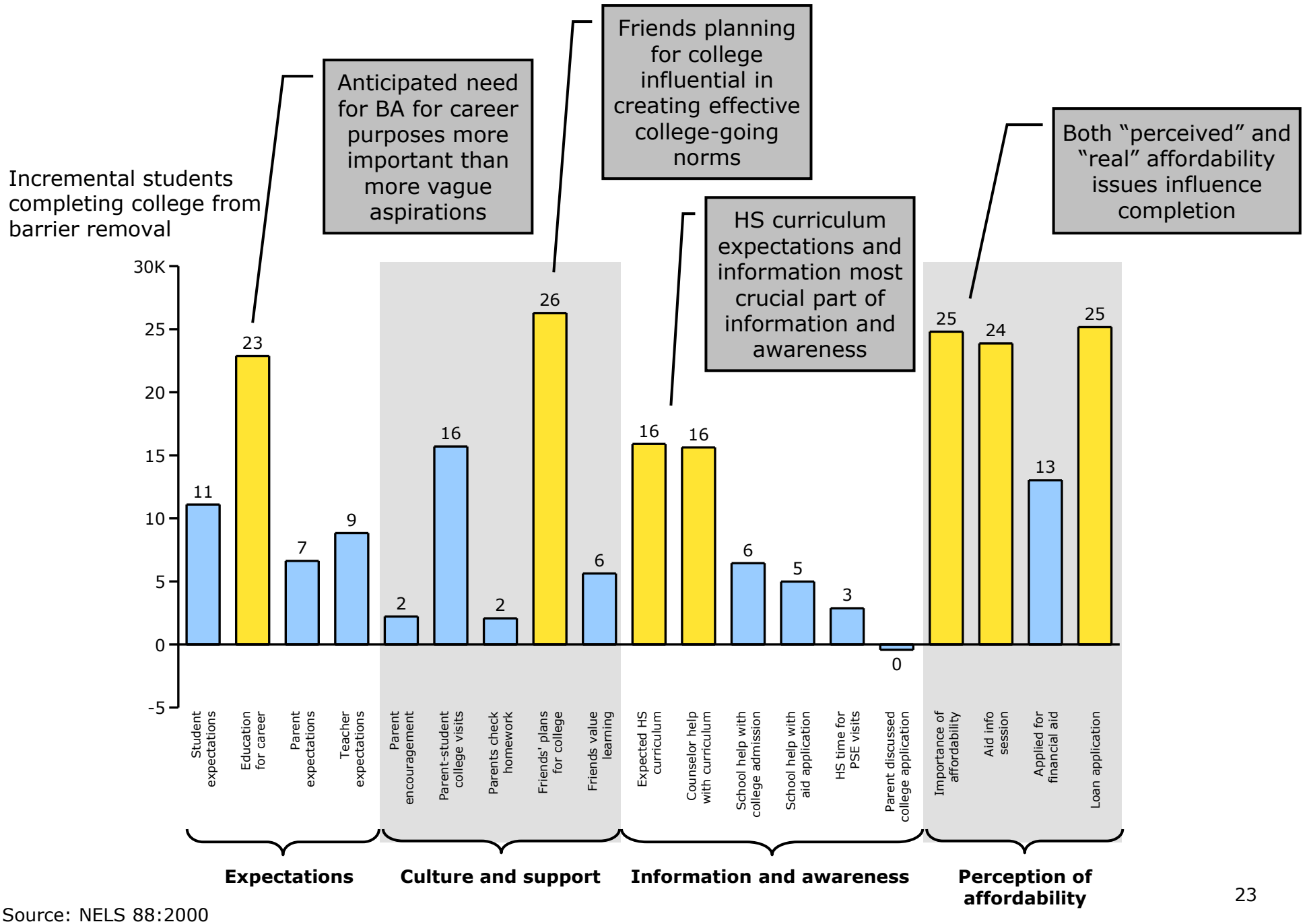
Source: NELS 88:2000

Affordability: Most apply for aid, yet lack of "real" affordability and of deep knowledge of aid options affect many students



Source: NELS 88:2000

Potential impact drives barrier prioritization



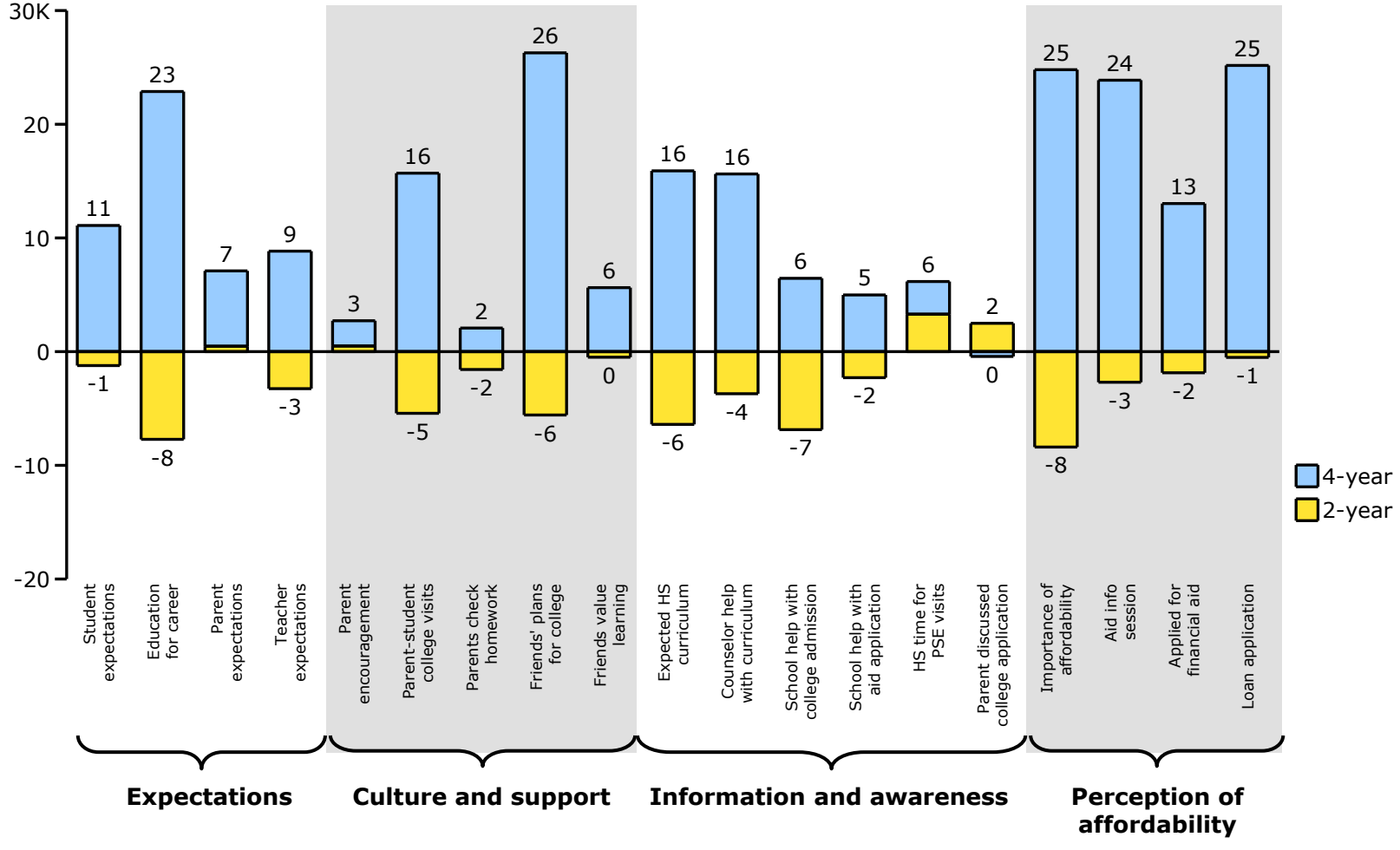
Source: NELS 88:2000

On average, ~80% of the gain in college completion comes from students who would have received no degree at all

Summary results

- On average, 22% of 4-year increase comes from 2-year decrease
- Average 4-year increase: 18K
- Average 2-year decrease: 4K

Incremental students completing college, by type, from removing barrier



Source: NELS 88:2000

Findings from barriers analysis largely align with external sources

Barrier	Findings	External source	External conclusion
Academic preparation	• Deliver largest potential impact by virtue of being most important enabler for completion	• Adelman	• Academic resources, driven by curriculum, are the most important variable in regression analysis of college completion
		• Cabrera	• Low-SES students enroll and progress at much higher rates when prepared
		• Choy	• Rigorous HS math curriculum more important than parents' ed level
Expectations	• Provide significant increase in rates of entrance and completion • Most academically prepared students have college-going expectations	• Hansen & Stampen	• Of all pre-college factors, collegiate aspirations most important in increasing attendance and completion rates
		• Ingels et al.	• Of academically prepared* students, ~87% expect to attain a BA or higher degree
College-going culture and support	• Peer environment most crucial element of college-going culture	• Cabrera	• Peer encouragement of college-going highly differentiated between low-SES and high-SES students, and ties to success in college
		• Choy	• Students with most friends going to college 4X as likely to enroll as students with no friends going to college
		• Merkowitz	• Good small school create a college-going culture in every aspect of their program

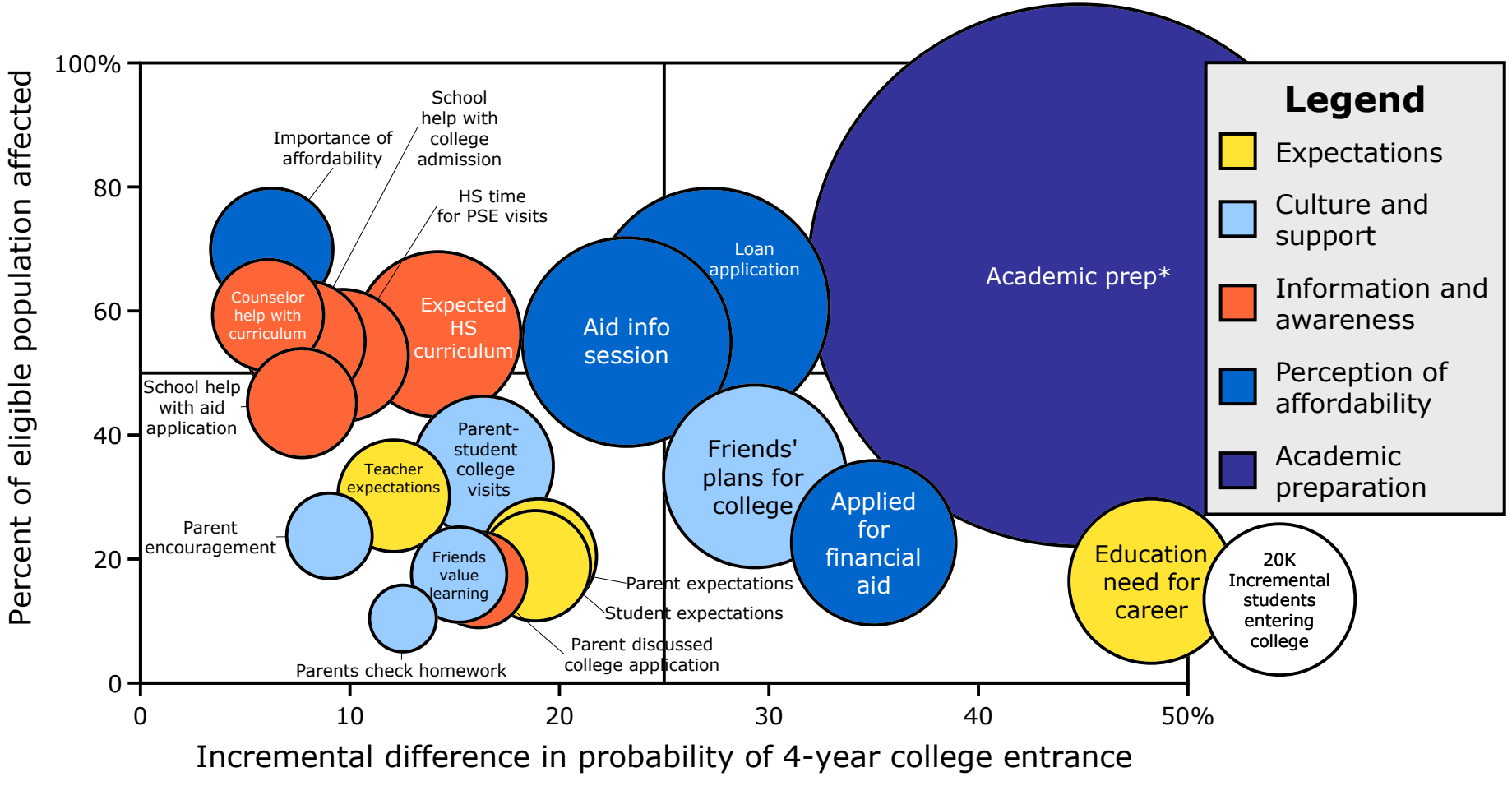
*Academic prep is defined here as completing Trigonometry or higher in high school
Source: Bridgespan analysis; NELS 88:2000; Adelman, "Answers in the Tool Box;" Cabrera, Pathways to a Four-Year Degree;" Hansen & Stamped, "Activating a Research-Based Approach to Reauthorizing the Higher Education Act;" Ingels et al., "A Profile of the American High School Senior in 2004: A First Look," Choy, "Access & Persistence;" Merkowitz, "Ready for College"

Findings from barriers analysis largely align with external sources (cont.)

Barrier	Findings	External source	External conclusion
Information and awareness	• Procedural assistance alone has a minor impact on college completion • HS curriculum expectations not in place for many who aspire to a degree	• Merkowitz • Cabrera	• Freestanding small schools generally do not utilize outside college access programs • Middle high school students aspire to college, but lack adequate preparation
Perception and reality of affordability	• Impact of "real" affordability large; potentially linked to shallow understanding of aid options • Most apply for aid, yet large increase in rates by getting those that don't to apply	• Oregon HS grad survey • Choy • Choy • Lumina	• 1st, 3rd, and 8th reason for not attending college concerned affordability constraints • Working more than 15 hours/week in college hinders completion rates • Borrowing increased completion rates • Many families misperceive cost of PSE, and many students are unsure about application requirements and financial aid options

Source: Bridgespan analysis; NELS 88:2000; Cabrera, Pathways to a Four-Year Degree;" Choy, "Access & Persistence;" Merkowitz, "Ready for College;" OIRS at OUS, "Where Have Oregon's Graduates Gone?;" Lumina Foundation website

Composite impact for 4-year college entrance



*For the purposes of this analysis, the eligible population for the academic preparation barrier was the set of all low-income high school graduates (~870K); for the other barriers, only academically prepared low-income high school graduates (~300K) were considered

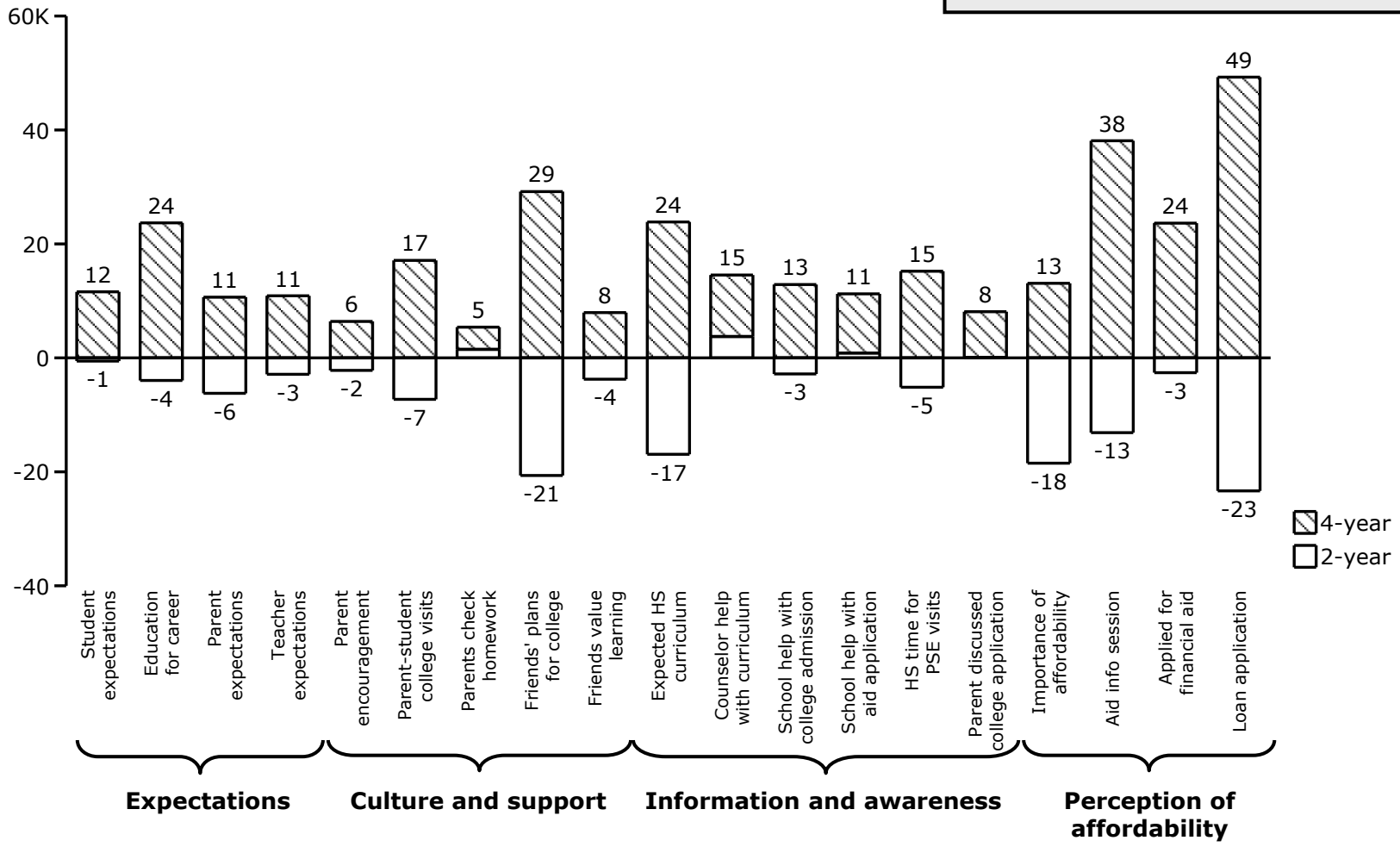
Source: NELS 88:2000

On average, 38% of increase in 4-year college entrance comes from diverting 2-year college-goers

Summary results

- On average, 38% of 4-year increase comes from 2-year decrease
- Average 4-year increase: 25K
- Average 2-year decrease: 10K

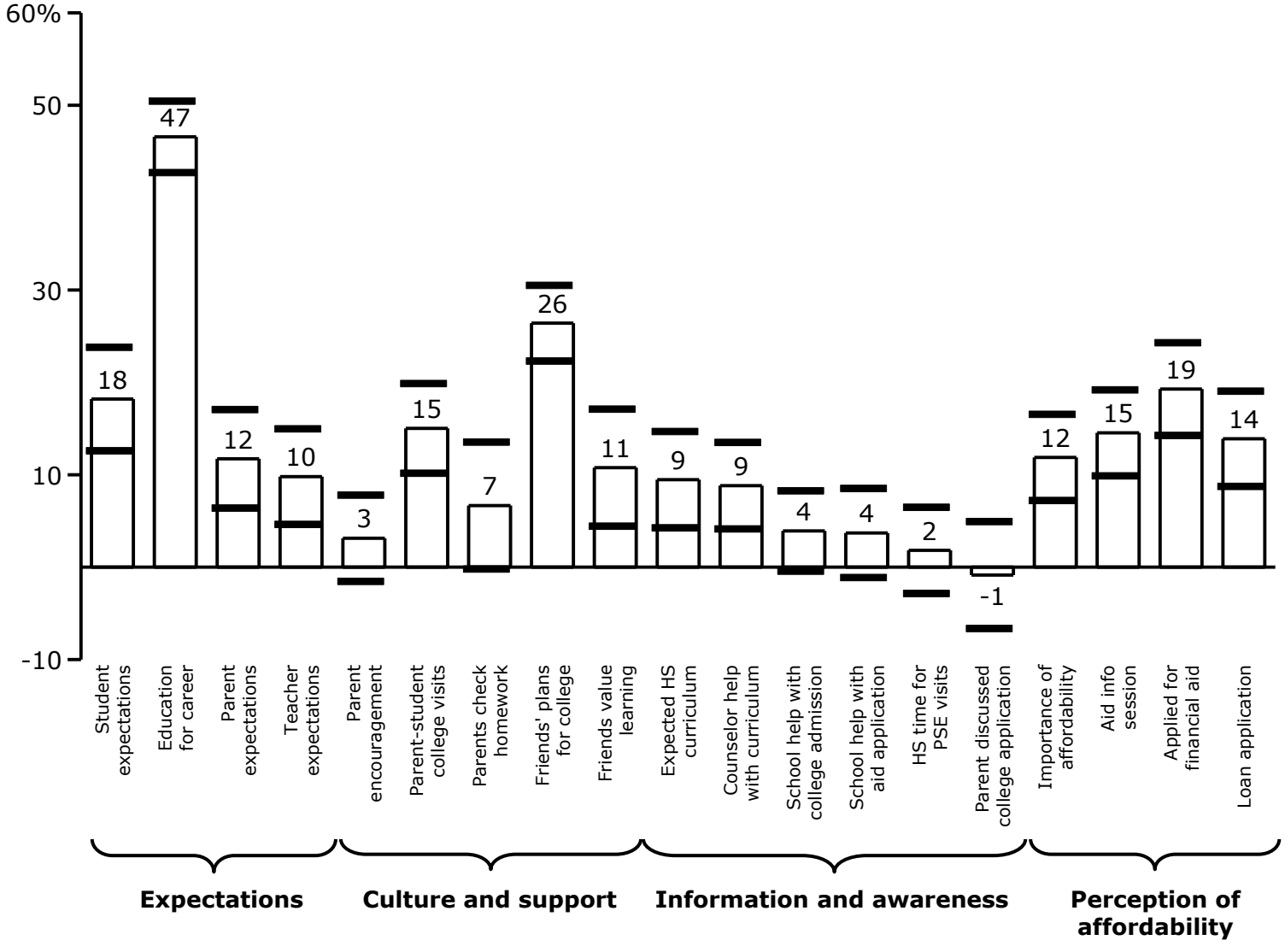
Incremental students attending college, by type, from removing barrier



Source: NELS 88:2000

Error bars for 68% confidence interval

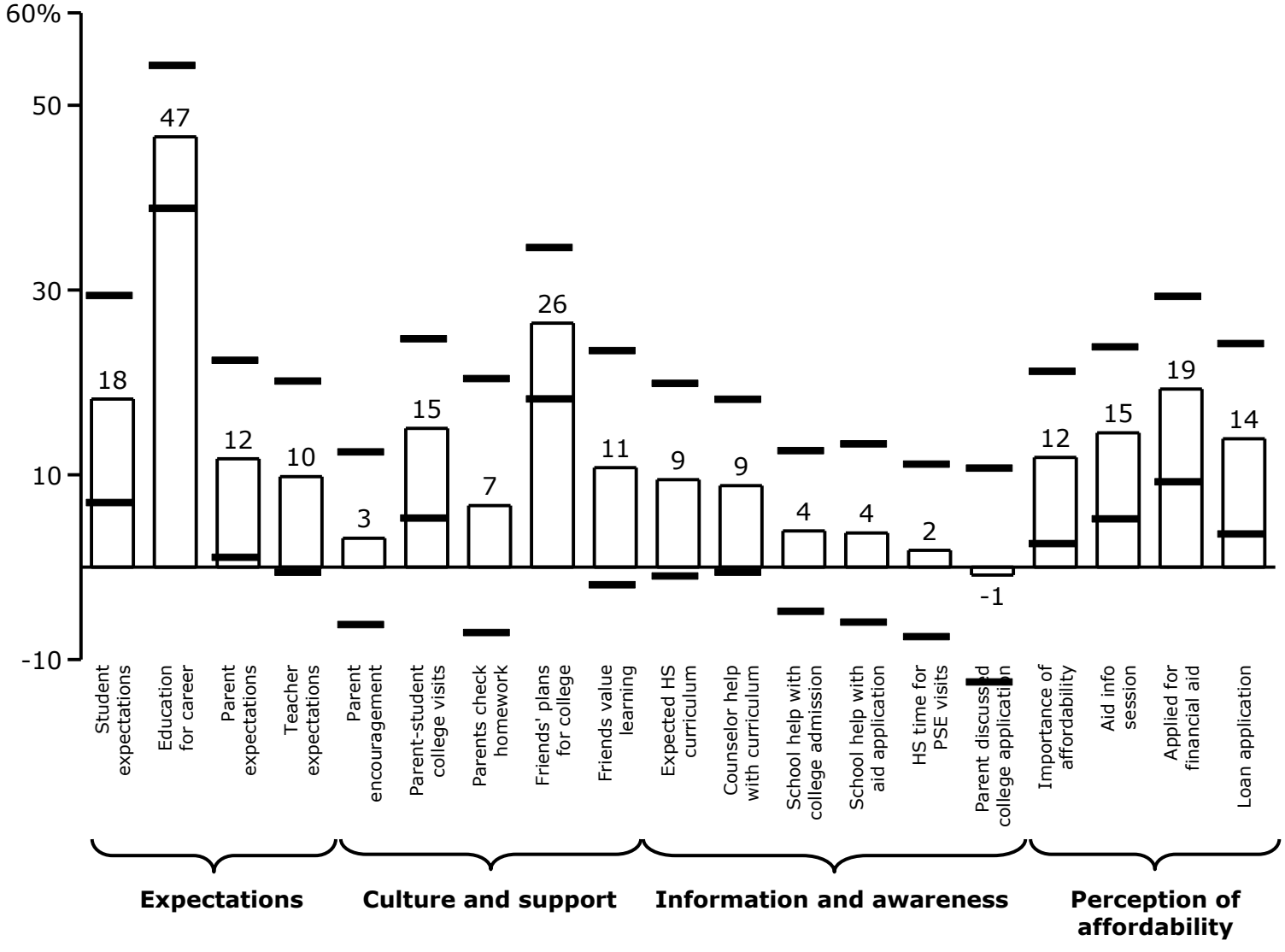
Difference in college completion rate between above threshold and below threshold answers



Source: NELS 88:2000

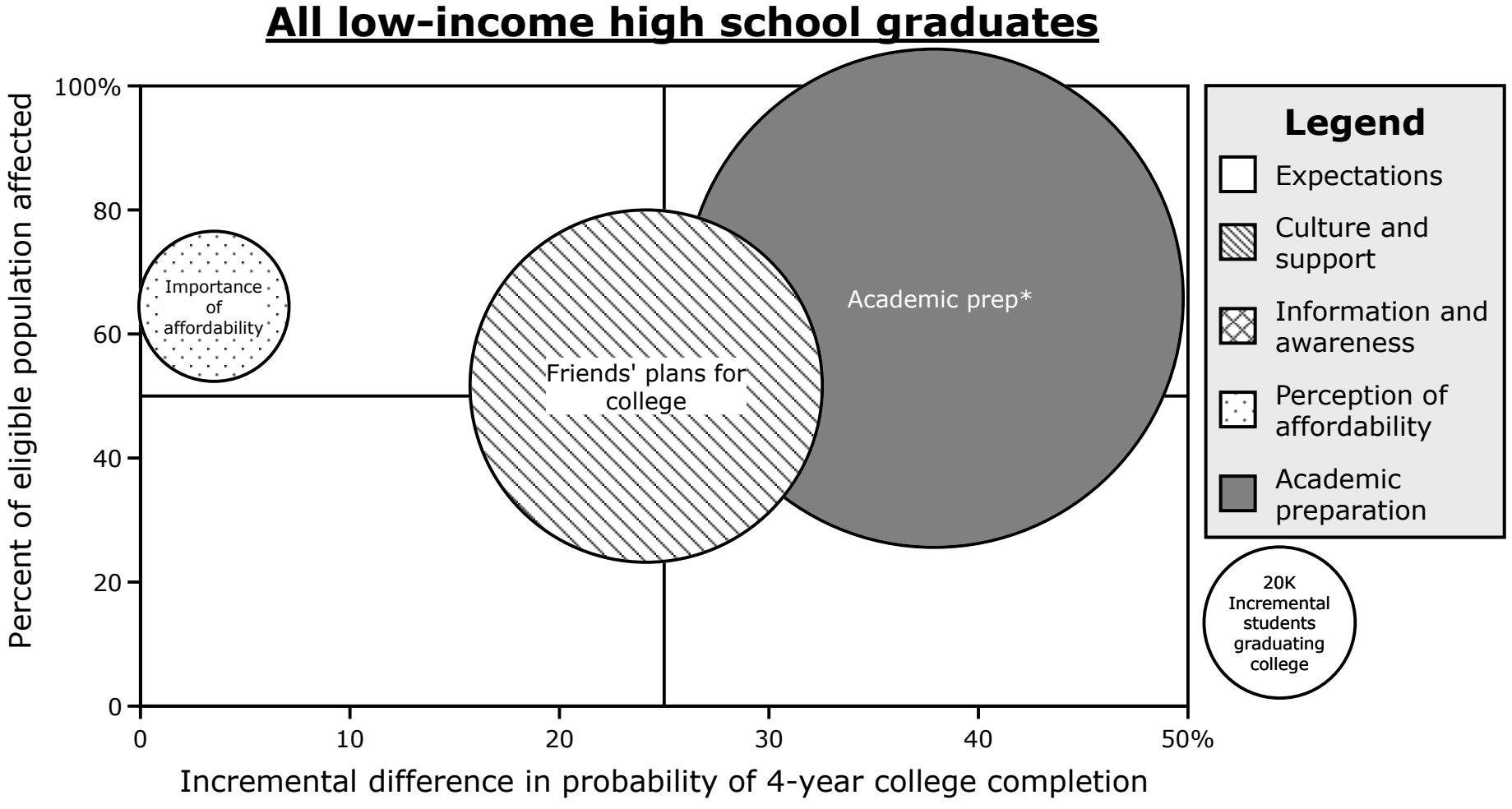
Error bars for 95% confidence interval

Difference in college completion rate between above threshold and below threshold answers



Source: NELS 88:2000

Barrier effect with no academic preparation control



*For the purposes of this analysis, the eligible population was the set of all low-income high school graduates (~870K)
Source: NELS 88:2000

Families and peers: executive summary

- To evaluate the effects of parental involvement, especially in relation to peer effects, two strands of additional analysis were completed
  - Additional parental involvement variables
  - Bundling of parental involvement variables

- Parental involvement at the required level is in place for most academically prepared students
  - "Required" involvement identified as the place where completion rates jump; deeper parental involvement doesn't lead to drastically increased completion rates
  - 5 of 7 parent involvement variables are not barriers for 80%+ of population

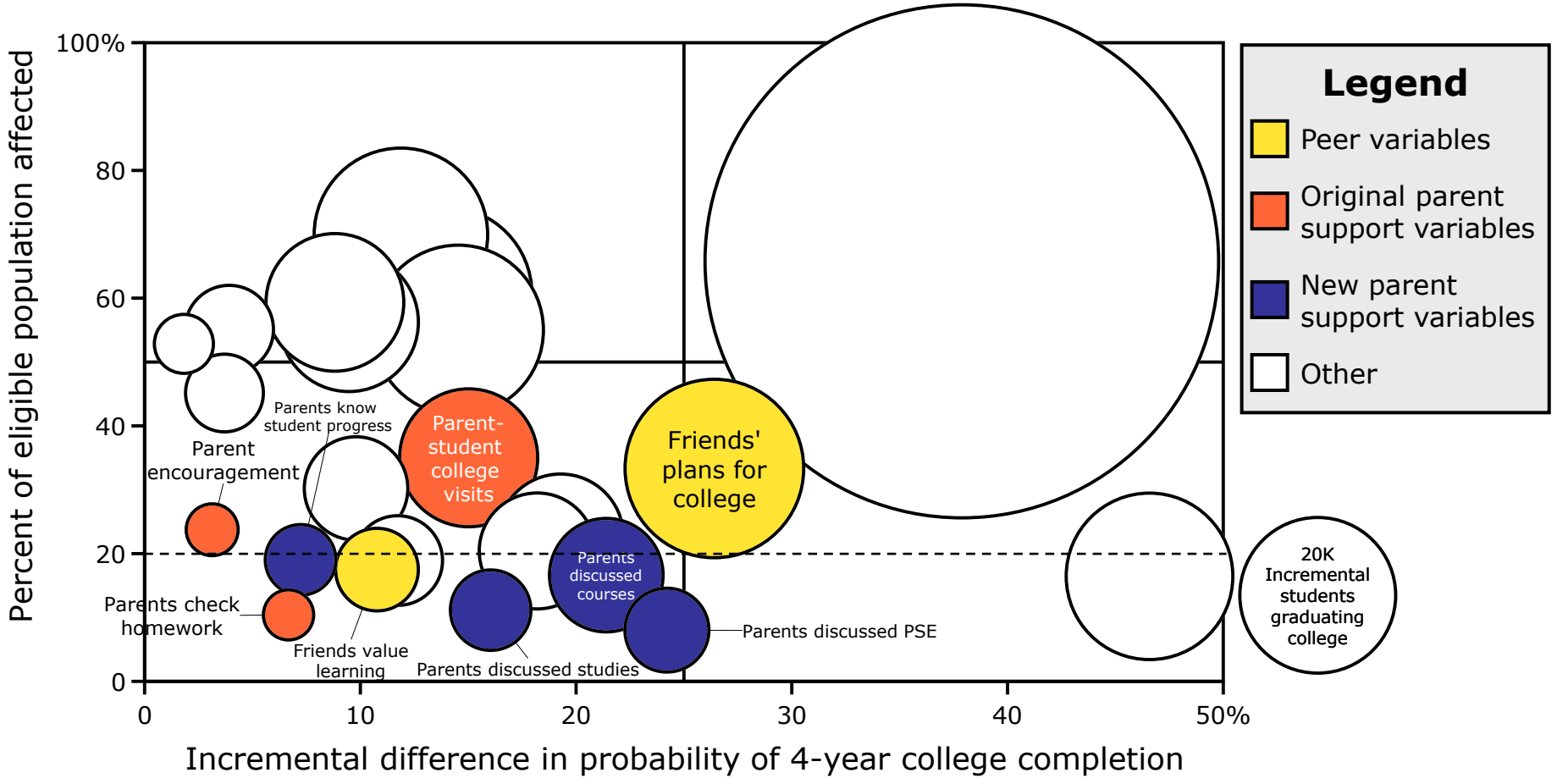
- Only the parent discussion bundle equals effect of "friends plan for college" (single variable), yet it's in place for most students
  - All bundles, grouped as "AND" statements, show increased effect relative to component variables
  - 77% of population analyzed already shows threshold level of parental involvement for parent discussion

Parent variables, including additional and bundled variables

Original variables	Newly added variables	Bundled variables	
• Parent encouragement • Parent-student college visits • Parents check homework	• Parents discussed studies • Parents discussed courses • Parents discussed PSE • Parents know student progress • Parents spoke with teacher	• Parent involvement - Parent encouragement - Parent-student college visits - Parents check homework • Parent discussion - Parents discussed studies - Parents discussed courses - Parents discussed PSE	• HS learning involvement - Parents check homework - Parents discussed studies - Parents discussed courses - Parents know student progress - Parents spoke with teacher • PSE involvement - Parent encouragement - Parent-student college visits - Parents discussed PSE

Source: NELS 88:2000

5 of 7 parent involvement variables are not barriers for 80%+ of population

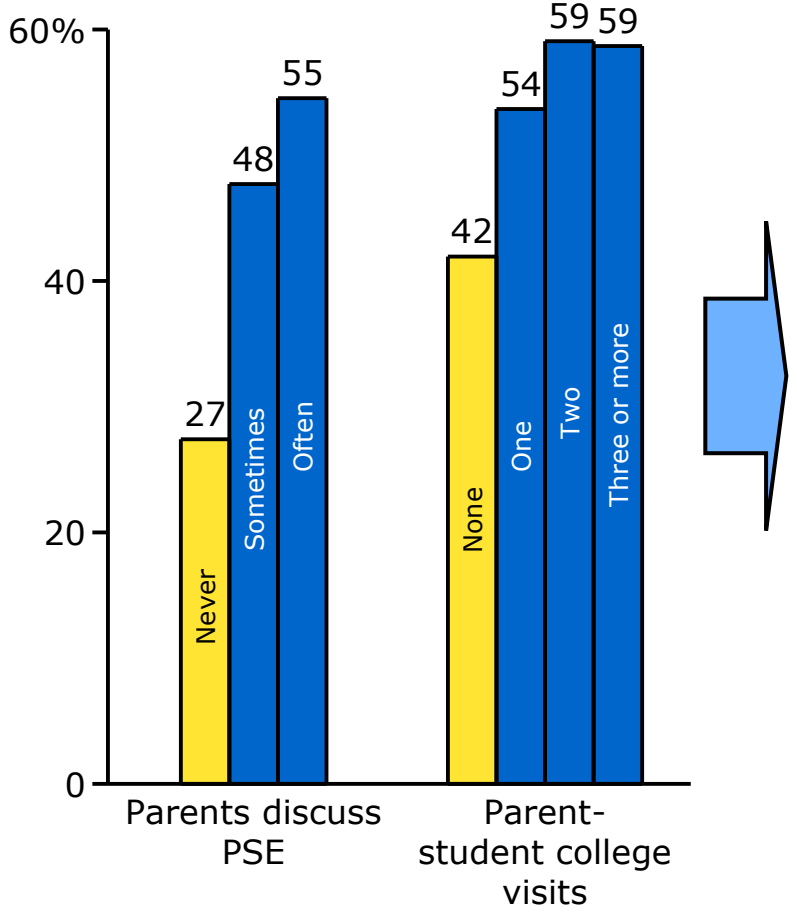


Is a base level of parental involvement a necessary condition to becoming academically prepared?

Note: "Parents spoke to teacher" variable had a negative effect on college completion and is not shown
Source: NELS 88:2000

Minimal level of parental involvement is required to drive increased completion rates

4-year college completion rate for low-income, academically prepared high school graduates

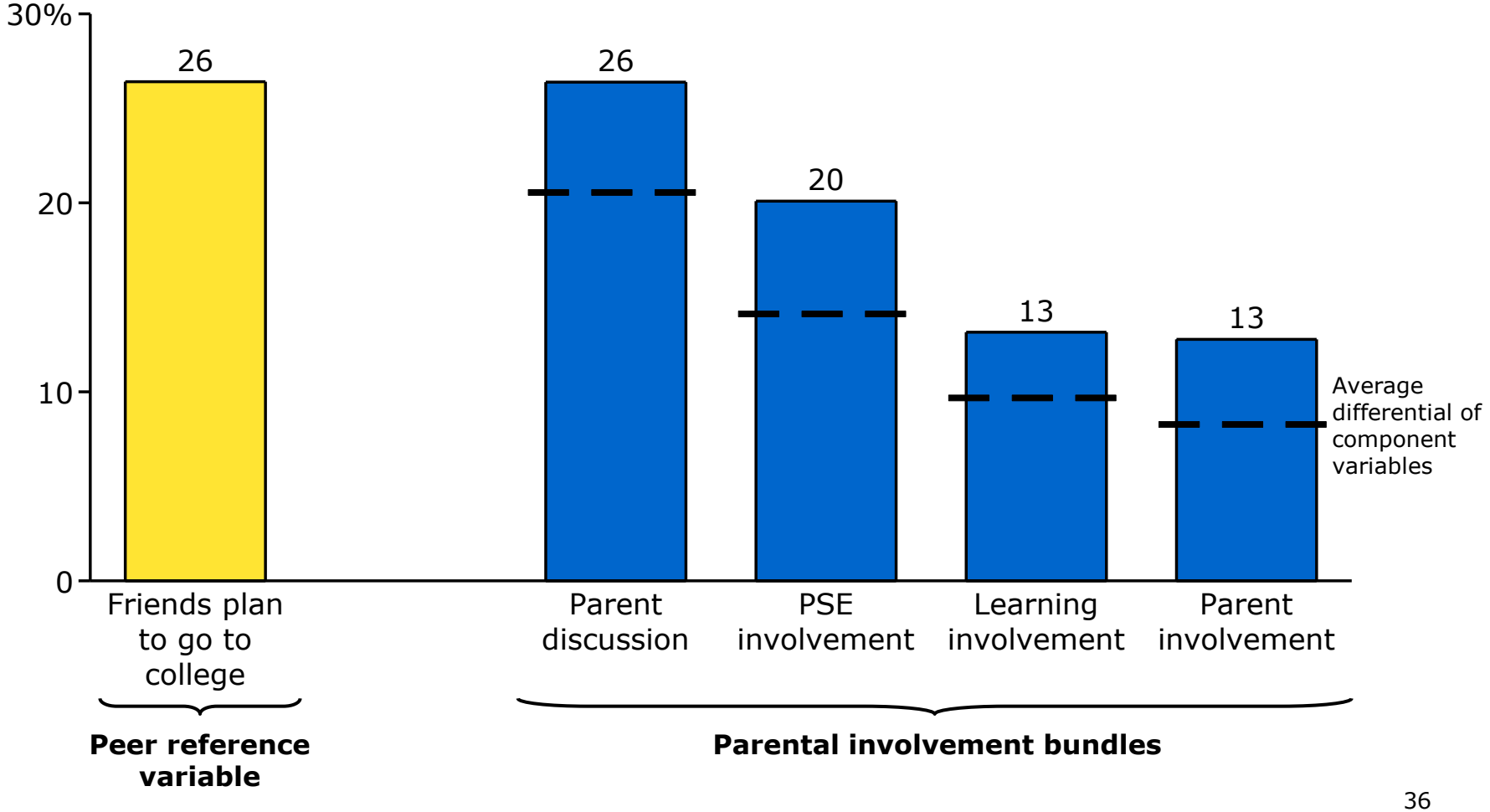


Variable	Below threshold answer	Above threshold answer
Parents discussed PSE	**Never** discuss PSE	Discuss sometimes or more often
Parents check homework	**Never** check homework	Rarely or more often
Parents discussed studies	**Never** discuss studies	Discuss once or more
Parents discussed courses	**Never** discuss courses	Discuss sometimes or more often
Parents know student progress	**Little to no** knowledge	Moderate to high knowledge
Parent encouragement	**Not** encouraged to take SAT	Encouraged to take SAT
Parent-student college visits	**No** college visits	One or more college visits
Parents spoke with teacher	**Didn't** speak with teacher	Spoke with teacher

Source: NELS 88:2000; Bridgespan analysis

Only parent discussion approaches peer effect in terms of increasing college completion rates…

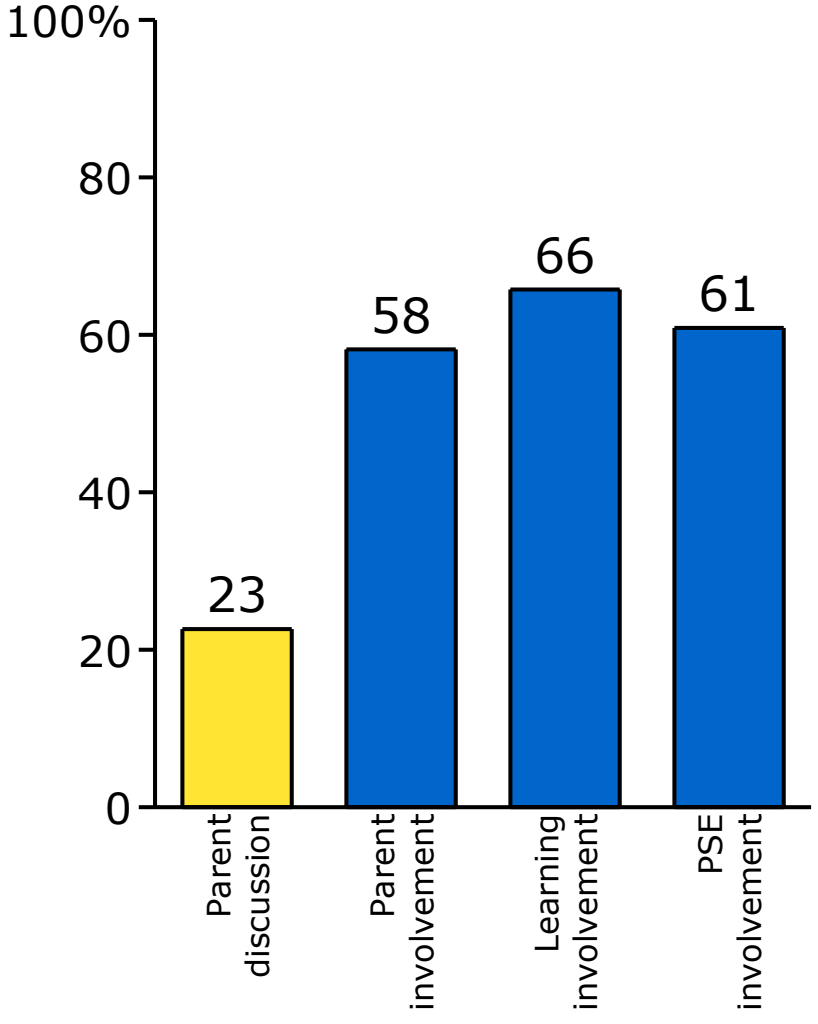
Differential 4-year college completion rate between above and below threshold groups



Source: NELS 88:2000

…and most academically-prepared students have this level of parental support

Percent of low-income, academically prepared students below threshold on barrier



- 77% of analyzed students show adequate amount of parental discussion
- To meet this amount, students had to be above threshold <u>on each of</u> three measures
  - Parents discuss studies (8th grade)
  - Parents discuss courses (10th grade)
  - Parents discuss PSE (12th grade)

Source: NELS 88:2000

Sub-populations: executive summary

- Particular sub-populations less likely to become academically prepared and less likely to graduate college even when prepared
  - Males versus females
  - Blacks and Latinos versus Whites and Asians
  - First-generation college bound versus those with parents who attended college

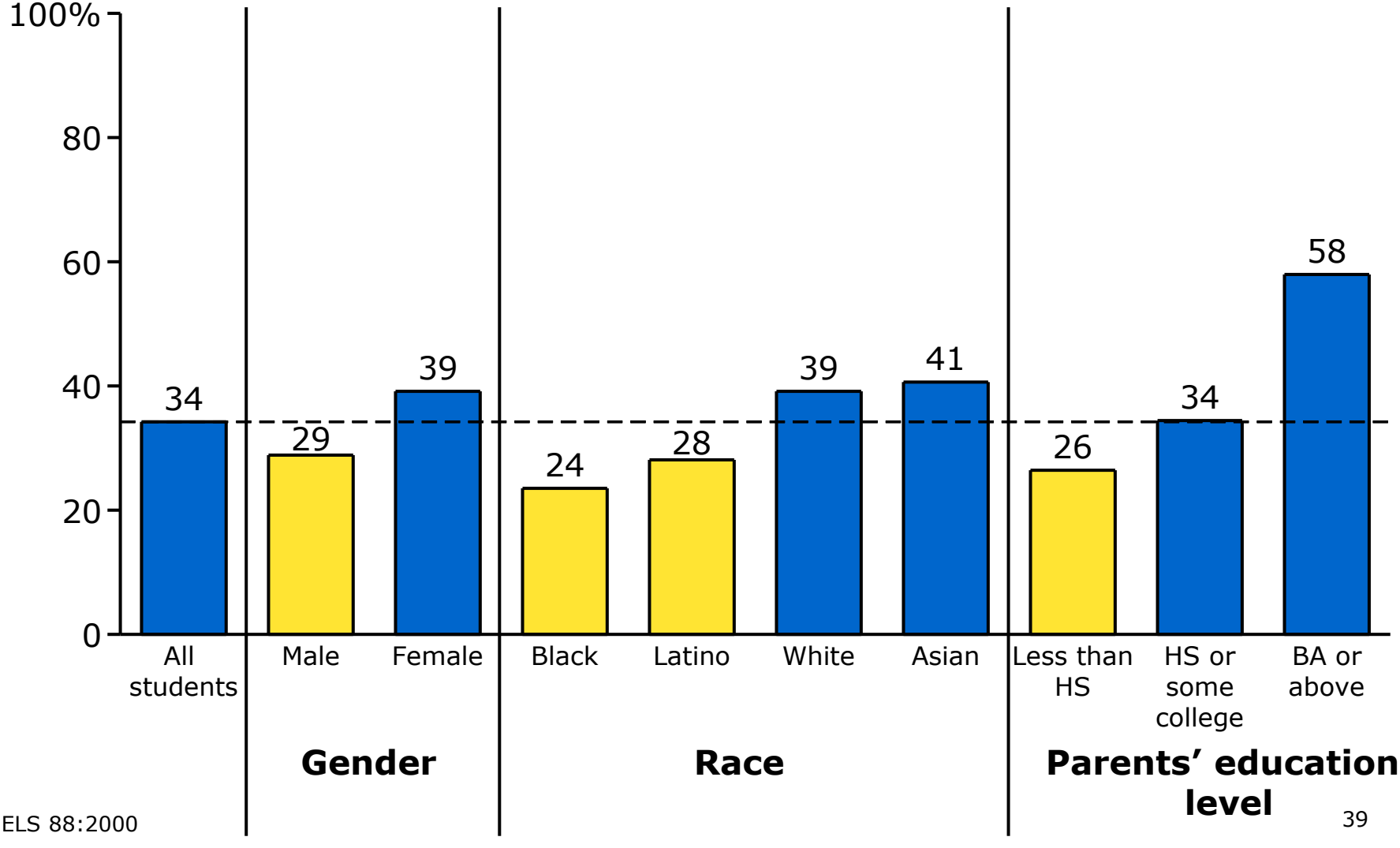
- However, research is unclear about which barriers are most important to address to increase college access for these sub-populations

- Most sub-populations are more likely to face the same barriers, in higher numbers, than the population as a whole
  - Particularly large distinctions by parents' education level
  - Surprisingly, Black sub-population less exposed to expectation and affordability perception barriers than White peers

Sub-populations need differentially more help, but probably on the same barriers

Disadvantaged subpopulations less likely to graduate academically prepared…

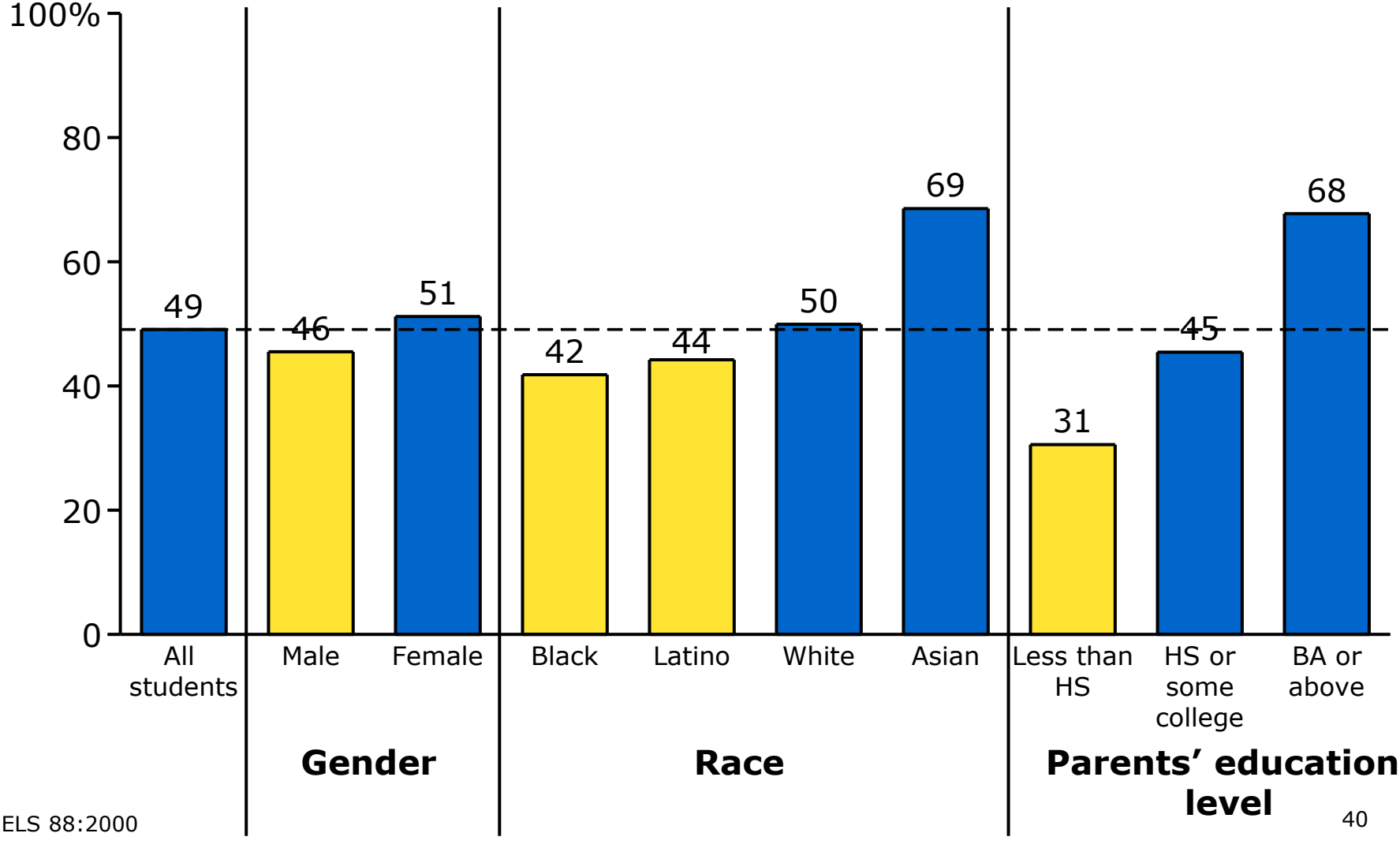
Percent of low-income high school graduates somewhat qualified or above (1992, NELS)



Source: NELS 88:2000

…and even those that are prepared are less likely to graduate from college

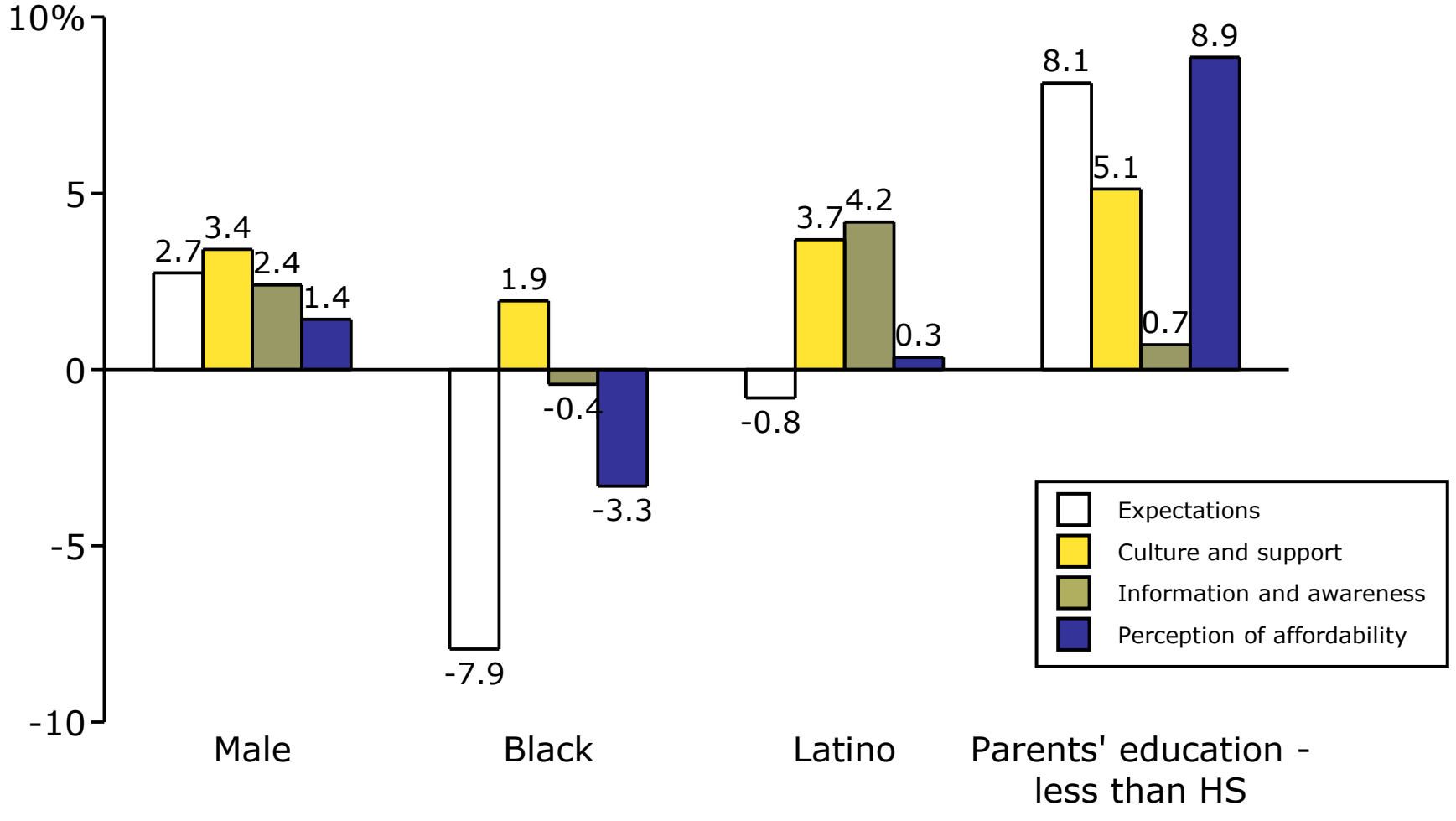
Percent of academically prepared, low-income high school graduates who attain a BA (2000, NELS)



Source: NELS 88:2000

Barriers generally affect larger proportion of students in subpopulations

Percentage point difference in proportion of population affected



Source: NELS 88/2000

Barrier analysis identified key aspects of the model to drive college-going culture

Lever	Finding	Implications
Culture and social support	• **Pervasive college-going culture matters**: Immersive college-going environment most crucial factor for enrollment and completion; led by having friends who plan for 4-year college	• Social support and college going norms among peers • Whole school models
Expectations	• **Student expectations matter but are in place**: Student expectations create high differential rates of completion, but most students already aspire for a BA • **Parent and teacher expectations matter less than concrete support:** Expectations themselves have a small effect, but actions such as PSE visits have larger effect	• Concrete, ongoing guidance and support for college going from knowledgeable adults
Information and awareness	• **Curriculum matters**: College prep curriculum expectations not in place for many who aspire to a BA • **Importance of education matters**: Of all variables, expecting a need for a BA for desired career at 30 has the largest incremental impact on college completion rates • **Perception of affordability matters:** Perception of unaffordability inhibits college entrance • **Procedures don't matter by themselves**: Some of the least important barriers were the absence of help with college-going processes such as admissions application and aid application	• Sufficient info about need for college-prep curriculum (and changes that funnel students into college-prep curriculum) • Information to link PSE to the "real world" (e.g., education need for careers) • Complete information and guidance to demystify college affordability options
Affordability, access, and capacity	• **Affordability matters:** Impact of "real" affordability large (potentially linked to shallow understanding of aid options)	• Adequate financial aid and guaranteed incentives targeting low income students (state/federal levels)

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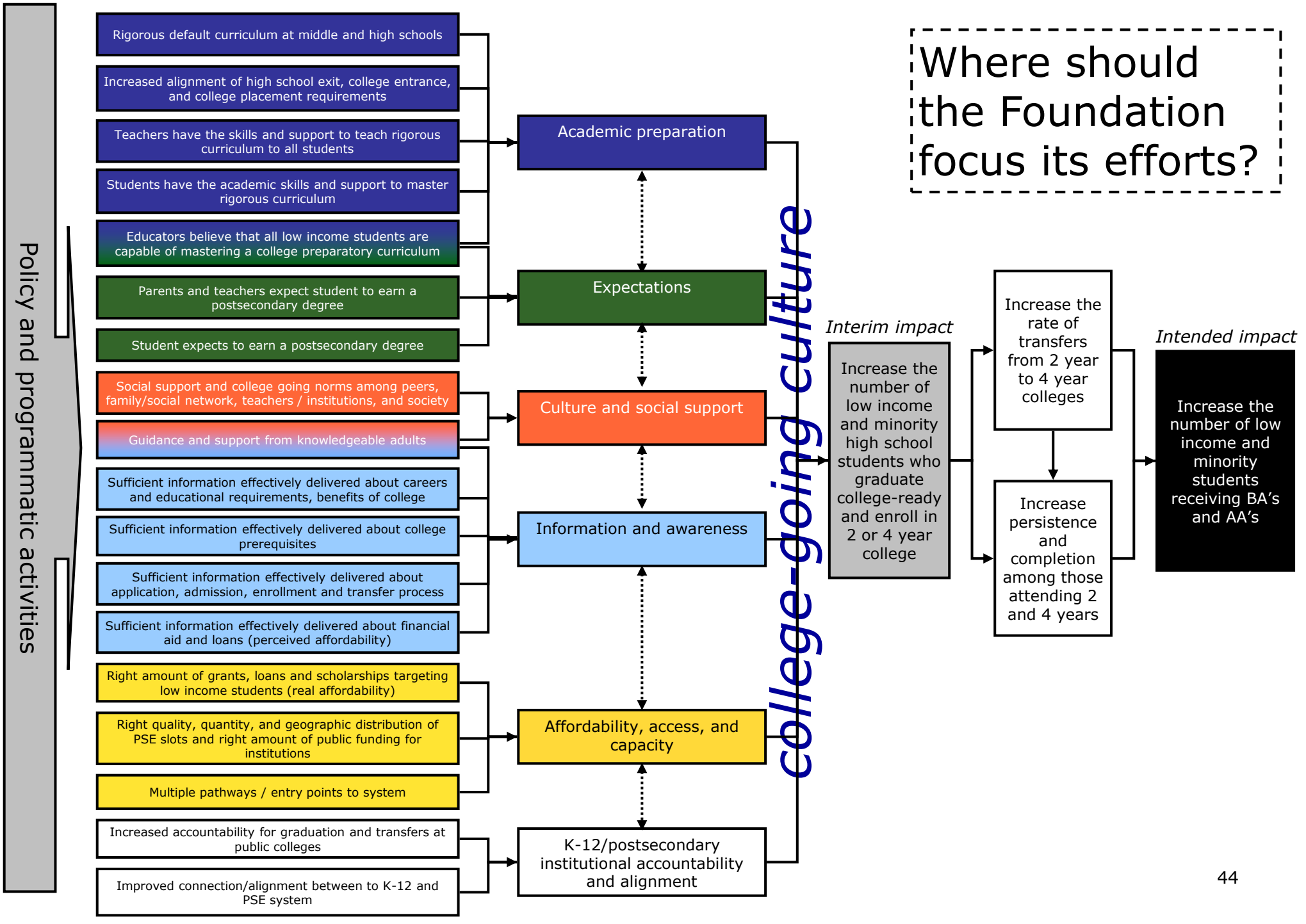
- College Access Theory of Change (independent of foundation's role)
- Framework on roles of Policy, Program, and Knowledge in driving change

College access theory of change



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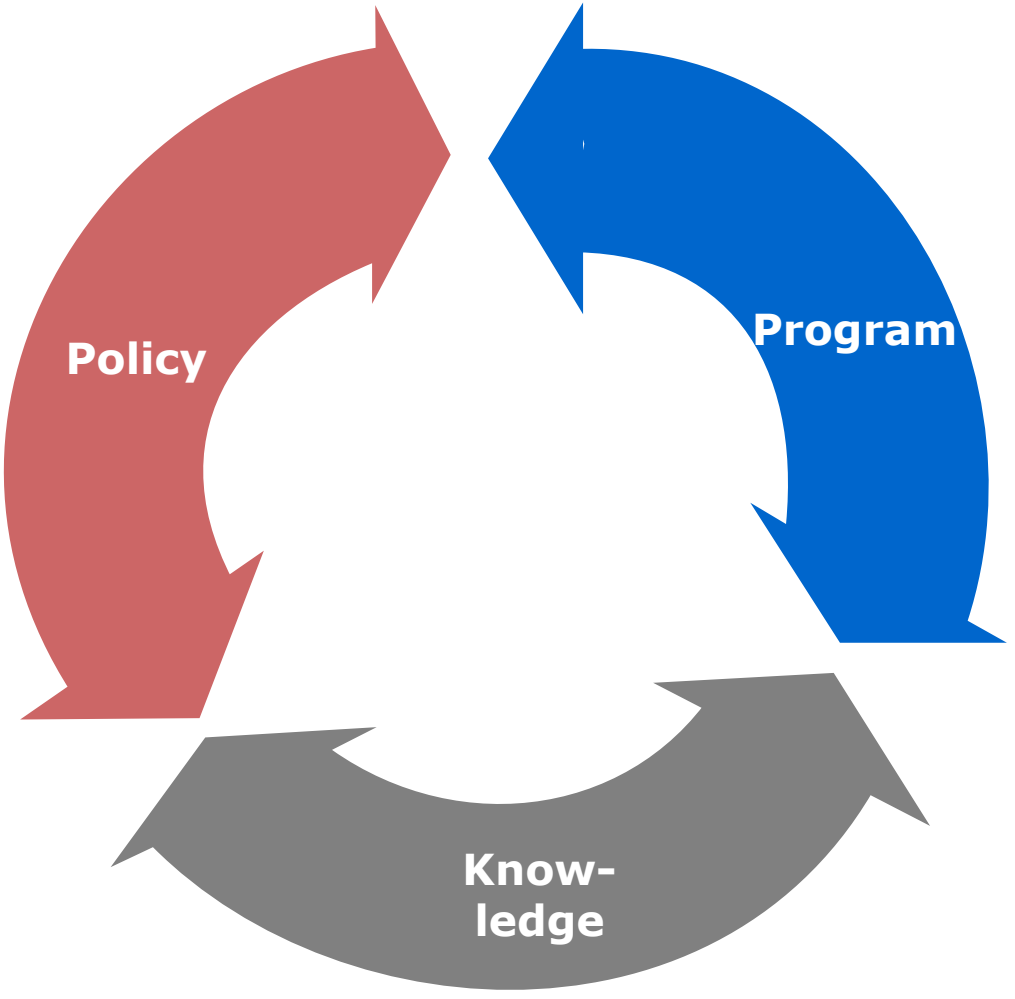
Policy, Program, and Knowledge each drive towards impact in different ways

Program, policy, and knowledge work together to create large scale social change

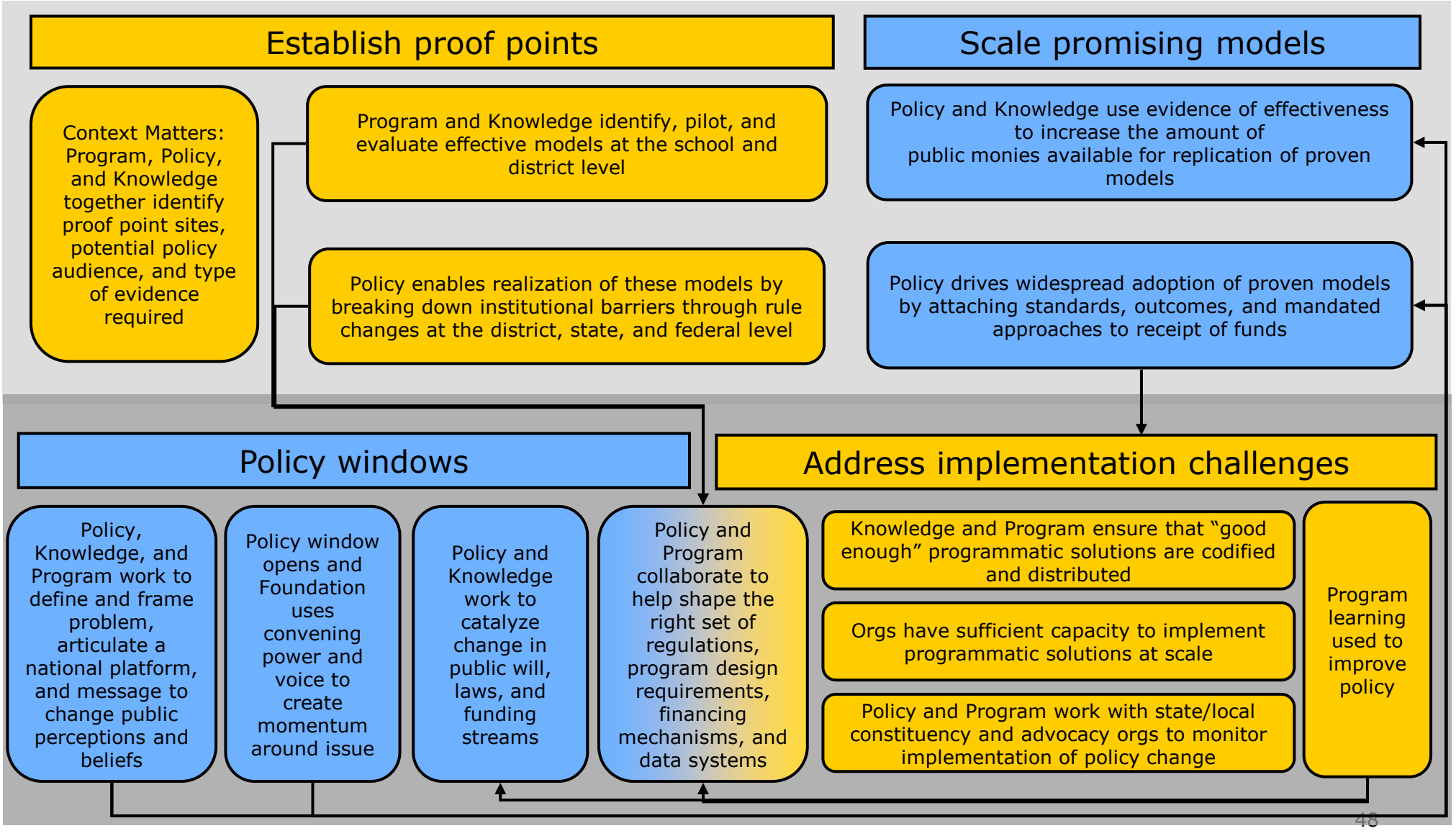
***Policy**:*
With 99.7% of all education dollars in the public system, any approach that changes the rules by which this system plays and the funds that flow into it has the potential to impact the vast majority of secondary school students in the US



***Program**:*
However, rules and money alone are often not sufficient; We need to know what works and how to implement it to make sure the benefits of policy shifts filter down to the students. Furthermore, programmatic success can inspire and initiate policy change.

***Knowledge**:*
Problem definition and evidence of what works is central to getting the issue on the agenda, the rules enacted, and the dollars allocated.

Two parallel processes by which Policy, Program, and Knowledge leverage one another's work



Example of maximizing the value exchange between program, policy, and knowledge: Saving, improving, and scaling GEAR-UP

Situation

- GEAR UP is a federal program aligned with college access TOA: Whole school model, coupled with financial aid, embedded in school culture and curriculum

Complication

Legislative Complications

- Awkward structure because legislation incorporates a state & partnership component each with different rules
- Cumbersome partnership and match requirements
- Loose or misaligned program design requirements
- False assumption that "feeder system" exists between middle schools and high school: 7th-12th cohort model doesn't apply to urban school districts

- **Program Complications**
  - Mentoring services vary widely in both intensity and reach, consistent problem recruiting personnel
  - Differential uptake of voluntary or "supplemental" services
  - Voluntary and often inadequate teacher professional development
- **Central concern: Very uneven implementation could kill the program via poor findings from the national evaluation**

Question

- Is there an opportunity to save the program through the Foundation partnering with federal government to influence program design and implementation?

How program, policy, and knowledge can work together to transform GEAR-UP

- **Policy**: Build public will among stakeholders – especially governors; organize the most influential GEAR UP providers
- **Policy**: Ensure survival in next budget cycle, establish jointly funded projects and associated requirements
- **Knowledge**: Identify what components of the model are making the most difference
- **Policy**: Revise legislation to mitigate differences between state and partnership rules, provide increased incentives for PSE to partner, and bake in findings from Knowledge regarding which components work

- **Knowledge**: Identify implementation barriers
- **Program and Policy**: Refine "feeder system" approach
  - -Ensuring cohort stays intact through 12th grade
- **Program and Knowledge**: Create a menu of standardized program requirements based on proven models
- **Program and Policy**: Create universal curriculum requirements and define core set of mandatory services that all students receive
- **Program, Knowledge and Policy**: Prescriptive teacher PD a la AVID; require a set amount of teacher PD each year

- **Knowledge and Program**: Collect and distribute implementation/ program best practices from within GEAR UP network to reduce effort/planning required
- **Program and Policy**: Create an effective national office
- **Program**: Implement and monitor high performing jointly funded program sites
- **Knowledge, Program, and Policy**: Facilitate establishment and tracking of target milestones
  - -Address student mobility
  - -Require program changes if not meeting target milestones for cohort

- **Policy**: Restructure match requirements and grant renewal requirements
- **Policy**: Identify additional funding from district, state and federal government
- **Knowledge and Policy:** Influence design and timing of evaluations